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Medico-Legal Aspects of Occupational Disease*

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WHEN the compensation laws of the various states were first enacted, occupational diseases were given no place. The benefits were confined to industrial accidents and their sequelae. Though the word "accident" was interpreted strictly in the beginning, this interpretation was soon given a liberal construction and the word "accident" was in many cases changed to "injury" to facilitate the inclusion of conditions obviously not accidental. Infections such as anthrax, typhoid fever, acute cases of poisoning such as lead and metal fume fever thus became compensable before the definite inclusion of occupational disease in the compensation acts.

The same consideration that prompted the move for compensation for industrial accidents—the severe economic and social distress of injured workers—prompted the gradual inclusion of occupational diseases into this scheme of relief. It seemed only fair and just that industry take the burden from the shoulders of the worker who was engaged in employment that was sure to shorten his life and expose him to hazards that would disable him physically and economically.

This necessity for allowing compensation in cases of occupational disease has been recognized by several of the states, so that at the present time the federal government and 12 states, including Hawaii and Porto Rico, include occupational diseases in their compensation

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laws. This inclusion is accomplished in three ways: by the word "injury" denoting accident and occupational disease; by the court's interpretation of the word accident; and by the enumeration of a specific list of occupational diseases. Minnesota, New Jersey, New York, North Dakota, Ohio and Porto Rico all have special lists, the diseases to be compensated for being specifically stated. Some of the states not only specify the disease, but also the restricted processes in which it must be acquired in order to be compensated.

With the inclusion of occupational disease in the compensation laws of these states, compensation boards and commissions now have the added problems of arbitration and administration of awards for occupational affections. The arbitration of such awards may be easy or difficult, depending on the wording of the act as well as its scope. Where the act specifies a list of 10 diseases, as in New Jersey, the work is more or less simplified. Where the whole gamut of human illness is thrown open to an occupational etiology, as in California and Connecticut, the difficulty of adjudication becomes great. It would seem more practical and equitable to accord pecuniary benefits in the latter case through a system of workmen's sickness insurance.

New Jersey in 1924 amended its compensation act to include occupational disease. It now has 10 such diseases listed:

1. Anthrax
2. Arsenic
3. Lead
4. Mercury
5. Phosphorus
6. Chrome
7. Wood alcohol
8. Benzene and its homologues
9. Caisson disease
10. Mesothorium or radium necrosis

This constitutes 1 infection (anthrax), 1 affection due to compressed air (caisson disease) and 8 poisons. Prior to the inclusion of the list, anthrax had already been construed as compensable while many of the poisons were compensated for their effects in cases of sudden exposure due to accidental leaks in piping or unavoidable accidents in technical processes. New Jersey does not prescribe the process in which the disease must be contracted, thus liberalizing the construction of the act considerably.

Those who appreciated the important rôle played by the compensation law for accidents in the increased reporting of accidents felt a justifiable expectation in the increased reporting of occupational disease. This, fortunately, has been realized. It is our impression after eight years of service that three times as many claims for occupational disease have been filed since its inclusion. However, the number of cases reported is still insufficient. This lack of increased reporting can be explained: First, the law is only three years old; second, occupational

disease is for the most part insidious and does not make the strong impression that accidents do; third, the medical profession is still far behind in the detection or appreciation of occupation as an etiological factor in the causation of disease.

Occupational disease in New Jersey is reportable to the State Board of Health by the doctor in a similar manner to the reporting of communicable disease. There is, however, no special form, nor is reporting compulsory. The State Department of Labor receives a copy of each report submitted and upon its receipt makes a complete investigation. Occupational disease is reportable also to the State Department of Labor by the employer on the same blanks as accidents are reported. Every claim for compensation in occupational disease is investigated by the factory inspectors of the Department of Labor.

In Ohio where excellent work has been done in the matter of legislation for the proper reporting of occupational disease, more than 4,500 cases of occupational disease of all types were reported between the years 1921 and 1925. Yet, this number is far below the actual incidence of occupational conditions.

Dr. Wade Wright found 2,000 occupational disorders out of 32,000 patients in the out-patient department of the Massachusetts General Hospital, an incidence of 6 per cent, of which in one year 148 cases of lead poisoning were found.

The improvement of occupational disease reporting depends on the combination and coöperation of several agencies: First, the compulsory reporting by physicians on special forms to the state department of health; second, the compulsory reporting of employers to the state department of labor; and third, the establishment of an occupational disease clinic under state auspices for the actual demonstration of the examination of workers and the detection of occupational disease conditions, as well as serving as a clearing house for information to the physician, employer and employe. Such a clinic has been proposed in New Jersey, and the first will be opened at Newark.

In the three years since occupational diseases have been compensated for in New Jersey, 1210 claims have been filed, of which 420 have been held non-compensable. Of the 790 compensable claims, 265 were for lead poisoning, 110 for benzol poisoning, 114 for mercury poisoning and 241 were for occupational dermatoses. The rest were scattered among the remaining compensable diseases with the exception of phosphorus poisoning, no such case being filed for claim.

The responsibility for the arbitration of awards of compensation for occupational disease rests for the most part upon the medical adviser. The referee and commissioner look to him for a correct and

intelligent solution of the various problems they must meet. They need answers to the following questions:

1. Is this man suffering from a compensable illness?
2. Was it acquired or aggravated at the last place of employment?
3. Does he require further treatment, or, is he able to work?
4. Has he suffered any permanent vital changes which will affect his future earning and working capacity?
5. If he dies—was the death the result of a specific occupational disease?

The task of the arbitrator or medical examiner is therefore fivefold. He must do the following:

1. Make a diagnosis
2. Determine the responsibility for the occupational disease if it exists
3. Decide the temporary period of disability
4. Determine the permanent disability
5. Determine the cause of death

DIAGNOSIS

Our first problem is that of differential diagnosis. For example, in lead poisoning the symptoms must be differentiated from those of other affections. We must distinguish lead colic from the gastric crises of tabes and syphilis, lead encephalopathy from epidemic encephalitis lead arthritis from other infectious arthritides and lead anemia from the anemia of malignancy.

Where these symptoms stand alone without other clinical or laboratory support, the diagnosis is uncertain. Colic occurring in a worker exposed to lead is not considered compensable unless accompanied by other objective clinical findings such as radial extensor weakness, lead line or by laboratory evidence of basophilic degeneration of red blood cells. In this respect, the use of the Martin spring balance to detect minor reductions in the strength of the radial extensors has been found very helpful. Such a finding is considered sufficient corroboration to justify a diagnosis of compensable lead poisoning. The question of differentiating between lead absorption and lead intoxication does not ordinarily concern us since most of the claimants appear because of some subjective or objective symptom related to intoxication. However, the detection of lead poisoning in workers without symptoms, but with definite lead line or laboratory evidence of the disease, such as may be disclosed at the periodical examination which is compulsory under our law for lead workers, automatically entitles them to the benefits of compensation. The following cases are illustrative of the problem of diagnosis:

A claimant aged 65 had worked in a lead smelter for 15 years and had been exposed to lead fumes and dust. His chief complaint was a constant tremor of both hands and a slight incoördination in walking. On examination, he disclosed

a typical syndrome of Parkinson's disease with masklike facies and tremor of hands and legs, propulsive gait, monotonous speech and loss of associated movements. His blood showed no changes except for a Hb of 80 per cent and a red cell count of 4,400,000. His claim was disallowed.

A negro aged 32 had worked for 2 years in the grinding room of a paint factory when he ceased to work on account of severe cramp-like abdominal pain. He alleged lead poisoning and filed a claim for compensation. He was found to have no other clinical or laboratory evidence of lead poisoning but he did have a positive Wassermann. His symptoms cleared up rapidly under mixed treatment. No compensation was allowed.

Workers on lead storage batteries are aware of the lead hazard and often file claims without any definite clinical symptom or complaint except for occasional malaise or giddiness. It is surprising to find marked stippling and a severe anemia present in these cases without more clinical symptoms. Examination of the urine and feces however reveals large excretion which explains the mildness of their symptoms.

A paster in a lead storage battery plant had worked at his last place of employment for 8 months and had been free from symptoms. He was seized one day with cramps and placed himself under treatment by a physician. He filed a claim for compensation and was examined. His blood was apparently normal, Hb 90 per cent, red count 5,200,000. His only symptom was colic. His urine showed definite lead excretion. He was allowed compensation. In many cases the evidence may be only presumptive, but the benefit of the doubt must be given the worker.

We have established three postulates each case should satisfy in order to meet the medico-legal test of compensable occupational disease:

1. The patient must demonstrate an exposure to the occupational poison.
2. He must demonstrate absorption of the poison by clinical or laboratory signs.
3. He must demonstrate clinical evidence of disability from this poison.

RESPONSIBILITY OF EMPLOYER

Having made our diagnosis, our next problem is that of determining the responsibility of the last employer. It would seem that this is essentially a problem for the referee or the commissioner, but the medical examiner is depended upon for the technical and medical information in most cases upon which the determination is based. New Jersey has no provision requiring the employe to have been employed in his last place of employment for at least a year before he can collect compensation for an occupational disease. Neither does it require the compensation to be divided up among the employers for the 12 months preceding the onset of the illness. The last employer generally pays for the entire condition unless he can conclusively show that the symptoms or signs, such as a musculo-spiral palsy, were

present at the time of hiring. An examination of 260 men for employment in a smelter disclosed at the time of hiring 32 men suffering from lead poisoning, as demonstrated by stippling in the blood picture. Twenty of these 32 denied ever having worked in lead.

Our chief problem occurs in those cases of chronic poisoning with no visible symptoms at the time of hiring who develop symptoms in their new place of employment. The questions we have to answer are: Is this a fresh case of poisoning? Is it an old one aggravated by his new employment? Is it an old case exacerbated by conditions outside of his employment, such as unhygienic living at home, dissipation or injury? These questions can only be answered intelligently when a complete analysis is made of each individual case. A thorough physical and biochemical examination, full information concerning his previous places of employment, as much as can be determined or ascertained concerning his outside mode of living and, finally, what the sanitary and hygienic conditions at the plant are.

One man had worked for a smelter for 18 years and was laid off at the age of 62. He had a double wrist drop which he admitted having had for 14 years, with which he was able, however, to continue at his work. Since this condition was acquired before the passage of the law, no compensation was allowed.

TEMPORARY DISABILITY OR PERMANENT DISABILITY

The temporary disability period is that period during which the sick worker is incapacitated from work on account of his illness. It is the task of the medical examiner to determine when that period should end, if it appears that the man is malingering; or to decide if he requires further treatment and abstinence from work if he is sent back to work too early. If he returns to work of his own accord, temporary disability is automatically terminated. For us to decide when a person is able to return to work is very difficult because of human variability and because of the many social and economic factors not related to illness. The determination must be based on objective findings of a specific nature, either clinical or biochemical. For example, in benzol poisoning a normal blood picture, normal weight and no other objective signs of illness, despite subjective complaints, should warrant the cessation of temporary disability.

Temporary disability terminates:

1. When all symptoms disappear
2. When the man returns to work
3. When symptoms are no longer confirmed by other objective findings

Compensation laws recognize the necessity for reimbursing the injured worker not only for wages lost during the period of his disablement, but also for the permanent effect of severe injuries and their end

results, such as amputations, ankylosis of major joints and paralyses, on the future earning capacity of the worker. Though no standards exist that might be used as a basis for measuring this permanent effect or disability, one of us has suggested in another communication the use of diminished physiological function of injured members as a basis for estimating the reduction in earning or industrial efficiency.

In a similar way, the slow insidious and cumulative effect of industrial poisons bears heavily upon vital organs and results in a definite measure of impairment of working efficiency, if not life expectancy. The medical examiner is charged with the responsibility of determining this measure of impairment in percentages of 100 per cent working efficiency and, upon the estimation submitted, compensation is awarded. For example, 100 per cent total permanent incapacity represents 500 weeks at the maximum rate of $17 a week, or $8,500. The permanent changes brought by lead poisoning, on the brain and cranial nerves in encephalopathy cases, on the kidney, blood forming organs, vascular organs or muscular system, must be translated into mathematical terms denoting impaired efficiency and earning capacity. The practice in the past has been for the attending physician representing the sick worker and the carrier's physician to submit estimates of disability based on their best judgment. The estimates submitted were always based on frank guessing with no indication of any basis for them; they were biased for the side they represented, and hence worthless.

We have proposed some basic principle that can be uniformly used that would not be arbitrary, yet would represent in some measure an approach to the requirement of a percentage estimation. The principles recognize first the importance of setting a time when the estimate or appraisal of permanent disability should be made. This period has been called by French writers the "period of consolidation." This period when applied to accidental injuries, is the time when the injury has healed sufficiently to enable the injured worker to return to work without any danger, or where the condition being so severe that he is unable to return to work, the pathological condition has shown no change over a specified period of time. Applied to occupational affections, estimating permanent disability at the time the injured worker returns to work is as a rule too early. The insidious and cumulative effect of industrial poisons takes a long time to indicate their ultimate immutable changes. We should say, therefore, that it is the period when the pathological signs have shown no appreciable change for a period of 4 to 6 months. This would bring this period in cases of lead poisoning to about a year or more after the last onset of the disease and

in mercury poisoning to 2 years and more after the last recognition of the presence of the disease.

Now, how shall we appraise the resultant damage caused by the specific occupational poisons? Let us see first what their effects are. The gross effects of these occupational affections make themselves felt in two ways: on the immediate or intermediate reduction in the strength or complete muscular power of the individual, and on the ultimate life expectancy.

The impairment of muscular strength is the result of direct and indirect action of the poisoning. Through its direct action on the peripheral nerve or neuromuscular mechanism, paresis or paralysis may develop, and through its direct action on the muscle, weakness also occurs. Through its effect on vital organs such as the vascular and renal organs, there is an indirect reduction in the general muscular strength. How can we measure this strength or loss of strength?

Strength may be measured ergographically or through the use of dynamometers. The ergographic method lends itself to much error since it depends for its findings on the fatigue factor, a thing that cannot be measured. Most dynamometers such as the common grip dynamometers give such variable results that they are worthless for any system of accurate measurement and, furthermore, depend on the voluntary control of the patient.

The Martin spring balance and method is an efficient method for determining muscular strength. The pull of eight muscle groups is registered in pounds on the spring balance and the result when multiplied by the factor 6.67 gives an accurate index of the total body strength. The test is simple to make and can be done by trained laymen. The result may be compared to some standard figures for the age, weight and height of the affected workman. These figures are not at hand in large numbers, although we have the results of 340 cases of varying ages, weights and heights. However, it is feasible to compare the strength to the job strength; that is, the minimum strength of workers employed at the same process. For example, if the job strength of color mixers is 2,800 pounds and the muscular total strength of the sick worker, 2100 pounds, there is a reduction of 25 per cent of his normal industrial efficiency.

The Martin strength test has had practical trial, in the investigation of poliomyelitis, soldier's heart, and estimation of job strength. We have used it in the determination of permanent disability of the accidentally injured for the past six years. This test is therefore practical and indicates the possibility of determining approximately the incapacity of workers from occupational poisoning or other affections.

It is a common feeling that the industrial hazards to which workmen are exposed are a definite factor in the reduction of their life expectancy, but there are no data that definitely state what this reduction is. Such data as exist, the mortality statistics by occupation, are not necessarily conclusive. They are by industries rather than by occupations and lump together a large number of widely varying employments. Although no statistics are available, it would seem rational and equitable to all concerned to compensate sick and injured workers on the basis of the reduction of their life expectancy. For instance, we know that the life expectancy for a man with one kidney removed is reduced 25 per cent. This is used as a basis for compensating those who have suffered the loss of one kidney through accident. If sufficient data could be gathered and tabulated to form a basis of such an appraisal, they could be used and checked up later by actual experience. For the present, the only statistics available show a death rate due to lead poisoning of 1 per cent for all cases, while for painters, chronic lead poisoning is given as a cause of death in only 2 per cent of every 11 cases. These figures of course are not significant for many reasons, among which is the fact that cerebral hemorrhage, apoplexy, paralysis, organic heart disease and kidney disease, all of which may be the end result of lead poisoning, are not considered as causes of death due to lead poisoning. Dublin estimates the diminished life expectancy of industrial workers as 8 years compared to non-industrial workers.

DETERMINATION OF THE CAUSE OF DEATH

Finally, it is the obligation of the medical examiner to determine the cause of death in disputed cases of death alleged to be due to occupational disease. As in the case of determining the responsibility of the employer, so in these cases is it necessary to analyze all the data in the case, which should include all medical and laboratory reports that would help to establish a diagnosis of occupational poisoning, the working conditions at his last place of employment, and at other places of employment, the history of previous attacks, and finally and most important, an autopsy. The cause of death of six girls employed in painting luminous dials on watches was undetermined and puzzling. Guesses of phosphorus poisoning, osteomyelitis of the jaw, and Vincent's angina were all made until the autopsy revealed changes throughout the entire hematopoietic system, indicating the use of a radium-like substance in its action, viz. mesothorium.

An experience with the management and adjudication of cases of occupational diseases leads us to the belief that only occupational poisons should be compensated; that all other forms of illness which

can directly or indirectly be traced to industrial conditions should be compensated through a system of workmen's sickness insurance; that increased reporting of occupational disease could be accomplished from a three-point attack: compulsory reporting of the doctor to the board of health, compulsory reporting to the department of labor by the employer, and the establishment of an occupational disease clinic, under state auspices, for the dissemination of information and the demonstration of methods of examination and detection of occupational disease.

The payment of compensation for occupational disease must be made in accordance with medical facts. Compensation for permanent disability should be based on accepted standards, not necessarily arbitrary, such as could be adopted or proposed by such an organization as the American Public Health Association. The use of the strength diminution and reduction in life expectancy is suggested as a rational basis for such an appraisal. Finally, the autopsy is an important factor in determining the cause of death.

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DISCUSSION

Volney S. Cheney, M.D., thought that the time was at hand for the establishment of a Standards Committee for questions in the field of both industrial accidents and diseases.

C.-E. A. Winslow, Dr.P.H., said that the Crampton test should not be taken as a measure of general vitality, but it was of value in determining the response of the blood vessels. The Massachusetts occupational disease compensation law had been unsatisfactory. The law was not specific, as in those states which have schedules, so that compensation had been allowed for tuberculosis, heart disease, etc., where industry was very questionably at fault. As a consequence it had been difficult for employes with these and other afflictions to get work. However, last year the law had been changed limiting its application to specific occupational diseases. What was wanted in states where compensation laws exist is a qualified referee or bureau to act impartially upon the cases presented.

Frank G. Pedley, M.D., asked what was the source of so much mercury poisoning in New Jersey, also what was done with carbon monoxide poisoning. He would also like to hear more about the Martin spring balance in its industrial application.

Wade Wright, M.D., said that the broad coverage law in Massachusetts was too easy and that workmen's sickness insurance is the fairest thing. He felt sure that 4 of the lost years compiled by Dublin for industrial workers had not been considered as due to specific occupational disease, like poisons, etc., but to the general hazards of industry. He felt that one year was too short a time for estimating the ultimate damages produced by lead poisoning.

Otto P. Geier, M.D., asked Dr. Wright what length of time he would consider satisfactory.

George H. Wood, M.D., saw little point in waiting for an autopsy for a diagnosis. Were the three points mentioned for diagnosing lead poisoning, that is (1) proof of exposure, (2) signs of absorption, and (3) evidence of clinical disability, legal in New Jersey or just a personal construction?

Frederick L. Hoffman, LL.D., stated that the estimation of life expectany is a very difficult proposition. It is necessary to work out life tables both with and without tuberculosis, heart disease, etc., in order to draw worth while conclusions. He commented at length upon the experience of life insurance companies in relation to disability clauses. He was much perturbed by the confusion of lead poisoning with lead absorption and his studies had shown that many cases of the latter were confused with lead poisoning. In addition to the reports already published upon mesothorium in New Jersey there were 5 exposed girls who had developed an almost identical hip affliction and were now hobbling around. It was a sad state of affairs when compensation had been allowed in only 1 of the 6 cases which had died and in only 1 case of sickness of 5. The state seemed helpless and the company was heartless. There are probably two or three more girls yet to be heard from. These cases demonstrate that a time for fixing permanent injury would not be safe under 6 years.

He felt that the broad Massachusetts law, in spite of what had been said, was better than any specific list. Silicosis was more important in this country than lead poisoning. Most cases required an exposure of from 18 to 21 years and practically none occurred under 5 years' exposure. Tuberculosis is superinduced by silicosis, but it was silicosis and not tuberculosis that should be considered in

compensation. The mortality in the Barre, Vt., district from silicosis with tuberculosis is appalling, and many workers suffer.

Emery R. Hayhurst, M.D., stated that occupational disease clinics in connection with medical schools in industrial centers have been a failure in his experience in two different cities. The finding of lead in the urine was only a sign of absorption and not in itself one of lead poisoning. Compensation without actual disability, as the foregoing paper implied, was a new idea. In Ohio, where a state monopoly insurance exists, "the last employer" does not enter into the compensation question. The industries are classified into some 700 groups, and the premiums are fixed for each group every 6 months depending upon the experience of the previous 6 months. In order to create a specific bureau for factory hygiene and sanitation 1 per cent of all premiums collected had been set aside. The occupational disease compensation fund was raised by charging 1 cent for each $100 payroll. Up to two years ago the occupational disease premiums were varied according to the assumed risks in different industries ranging from a fraction of a cent to as high as $4.00 per $100 payroll, but the bookkeeping was so complicated that this method was discontinued. Now all industries pay the same premium for occupational diseases—1 cent per $100 of payroll. Hence the inducement for a particular plant to allay its disease hazards is not present, but there is some inducement in that each industrial group is interested in lowering its premium rates. Dr. Hayhurst would consider that Dr. Kessler ought to deduct 4 more years after taking off the "industrial 8" mentioned by Dublin, for occupations having specific health risks such as lead poisoning, etc.

W. E. Obetz, M.D., stated that compensation in Ohio is based upon one's inability to work and may be partially apportioned accordingly. "We encourage the reporting of the minor phases of occupational diseases so that they may appear early and disability be stopped before anything permanent occurs. Today we seldom see compensation looking to standard practices."

Dr. Winslow said that after what has just been stated, the great advantage of the general state fund, as in Ohio, can be seen since the previous employment is of no particular interest. Here we have the state bureau vs. the paid expert. Twelve states now have compensation for occupational diseases. He moved that the Industrial Hygiene Section create a committee on "problems of occupational disease compensation looking to standard practices."

This motion, seconded by Bernard S. Coleman, was unanimously carried.

Dr. Kessler, at this point, said that at present industrial commissions were often paying out money in hit and miss fashion. They think they are proceeding in a satisfactory manner but in reality they do not know.

The use of the Martin spring balance test is important because the strength factor is a significant index of the worker's working capacity. For instance, in cases of lead poisoning there is often marked weakness which can be detected by the Martin test. To the same extent the Crampton index is valuable for noting the difference in vasomotor tone.

Whenever industry is a contributing factor it should promote a relief system rather than a damage system.

The cases of mercury poisoning in New Jersey come from batteries and from thermometer works principally. There were 24 cases of mercury poisoning during the past year.

"We regard carbon monoxide poisoning as an accident. Other acute chemical

mishaps are compensated for as accidents. Such was the custom before occupational diseases were included in our compensation schedule."

He said he had used the Martin test in 1340 cases in practice but only in a few occupational disease cases thus far. It is valuable for the measurement of job strength. For instance when tried upon 32 men in the same occupation (machine work) an average finding of 3200 lbs. was obtained. One of these men however suffering from chronic mercury poisoning gave a rating of 2600 lbs. a reduction of approximately 20 per cent in his physical strength.

"We find that occupational disease compensation amounts to only about 1 per cent of accident compensation. We all know that more occupational diseases exist than are compensated.

"The matter of whether we should deduct 4 or 8 or 12 years from the average life expectancy for the industrial worker is difficult to decide. Take the case of the removal of a kidney—how shall we compensate him? We have compensated such an individual to the extent of 25 per cent permanent disability based on his decreased life expectancy.

"There is, of course, a great question as to when we should fix the time limit before permanent disability is estimated. In neuroses, before deciding the case as one of permanent disabling character, we wait 1 year. If there has been no change in the last 6 months of this period the permanent disability is determined at the end of that 6 month period. In mercury poisoning we wait 2 years before deciding the permanent disability. The autopsy is used only when the case of death is one of dispute.

"The coöperation of the attending physician is necessary. His certificate must be backed up by corroborative evidence. Some 90 per cent of claims which come before the Commission are treated by the family physician."

In answer to Dr. Wood, he stated that the three postulates used for determining lead poisoning are not laid down in the statutes but are a valuable guide.

He said he had a mesothorium case at present, a woman who 7 years after exposure to luminous paint fell and hurt her shoulder; she now has pathology in the joint.

"Our proposed occupational disease clinic will work under state auspices. Only a small proportion of our occupational disease cases have permanent disability. A large percentage of our mercury cases however show permanent disability."

He hoped that the committee, which had been asked for, in the motion made by Dr. Winslow, would be a stimulus to other states to adopt compensation for occupational diseases.

Physical Education

THE Ministry of Hygiene and Physical Education of Czechoslovakia recently granted a subsidy of 4½ million crowns to private organizations for the promotion of physical education and in addition appropriated nearly 2 million crowns for the construction of public gymnasiums and athletic fields. The Ministry has also organized various courses on physical education for school and kindergarten teachers.—*Difesa Sociale*, Rome, Nov., 1927, p. 33.

The Technic of Meetings*

ARTHUR E. GORMAN, FELLOW A. P. H. A.

Former Chief Sanitary Engineer, City of Chicago, Ill.

AS a matter of simple courtesy, if for nothing else, it is incumbent on any organization to so "set the stage" for the presentation of technical papers or addresses at its sessions that the speakers may perform effectively, and the audience receive the fullest benefit from the presentations made, free from petty annoyances so common at public meetings of this type. Although the writer is of the opinion that in their organization and conduct the meetings of this Association compare favorably with those of others, there is still room for improvement and, therefore, offers this paper as constructive criticism of the meetings attended in the last six years.

It is, of course, assumed that the papers scheduled for meetings are on timely and worth while subjects; that they have been well prepared; and further that adequate announcement of their subjects and the place and time of presentation have been duly made in the convention program. There then remain three outstanding factors which must be blended to give a degree of harmony approaching the ideal conditions sought:

1. The selection, identification and arrangement of the meeting room
2. The conduct of the meetings by the officers
3. The speaker and his stage setting

Of prime importance is the advance selection of the meeting room. Its size will, of course, depend upon the estimated attendance, an item which will be gauged by the character of the session scheduled. The meeting room should be reasonably convenient to the convention headquarters or registration desk and yet sufficiently isolated that noises from within and without the hotel may not be objectionable. While meeting rooms on upper stories have the advantage of relative quiet from exterior noises, the congestion of elevators before and after sessions, when the attendance is large, should be considered as a contributory disadvantage. In a hotel located in a business district where outside noises are noticeable, inside meeting rooms are preferable provided efficient ventilation control is available. The degree and

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* Read at a Joint Session of the Health Officers and Public Health Education Sections of the American Public Health Association at the Fifty-sixth Annual Meeting at Cincinnati, O., October 18, 1927.

probability of occurrences of various types of common noises should be carefully considered with the hotel officials in advance of selection of rooms.

Some of the exterior noises which must be considered in connection with outside rooms are those caused by trucking in streets and alleys; sand-blasting of adjacent buildings; automobile horns; street cars; elevated trains; boat whistles; news boys; traffic officers' whistles, etc. Interior noises which should be guarded against are those caused by ventilators; elevator machinery, and careless handling of silverware and dishes in adjacent rooms being prepared for private dining purposes. Unless the possibility of these noises affecting meetings is investigated in advance of the selection of the meeting room and provided against they are likely to occur under conditions which cannot be controlled and thus seriously interfere with an otherwise well organized meeting.

The meeting rooms should be easily located by those desiring to attend and to this end should be well identified. The printing in the official program of a floor plan of the hotel adjacent to the convention headquarters while helpful is not always noticed by those in attendance and to some is confusing. It is believed that beginning with the lobby in which registration is conducted there should be posted adequate signs with indicating arrows directing the delegates to the various meeting rooms. In addition, there should be set on an easel directly outside of the entrance to each meeting room, a sign giving notice of the section in session and the time of the opening of the meeting.

The layout of a selected meeting room will, of course, depend upon its size, proportions, and the estimated attendance. The writer is of the opinion that in general a room one and one-half times as long as wide is proportioned for making the most effective seating arrangement. (See Figure I).

The speakers' platform should be at the center of the wall on the long side of the room, most distant from the entrance. It should be elevated at least one foot and be approximately 7 feet deep, 12 feet across the front and properly carpeted. There should be an aisle of not less than 8 feet between the front of the speakers' platform and the first row of seats. Except in cases where seating capacity taxing the room accommodations is desired, it is believed that the three-block arrangement of seats is most satisfactory, as it concentrates the audience within reasonable hearing distance of the speaker. This calls for a center block of from 10 to 12 seats wide, with at least a 4-foot aisle on either side and right and left sectors or blocks. The seats should be set to form concentric rows, with the outside chairs on the end aisle of

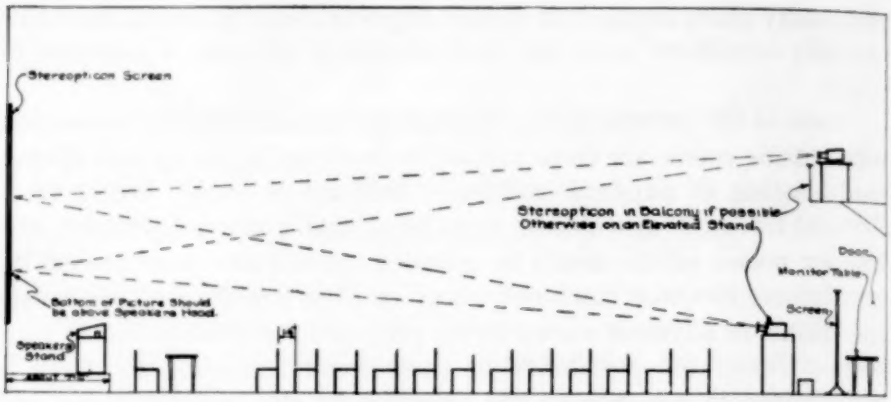

FIGURE I—*Sectional Elevation of Meeting Room*

the wing sections making approximately a 30° angle with the wall behind the speakers' platform, and on a radial line from this point. Should this result in the rear rows being over 10 or 12 chairs wide, supplemental aisles should be left to facilitate easy access and exit to and from the seats. (See Figure II.)

In case additional seating capacity is needed the five-block system can be used, which is less satisfactory to those sitting in the extreme wings. There should be an aisle at least 6 feet wide at the rear and two sides of the meeting room. To avoid crowding, adjacent chairs in each row should be set 6 inches apart and the distance between the front and rear of chairs in consecutive rows should be at least 14 inches. In the ordinary set-up of chairs for convention purposes these distances are not usually provided for, with the result that those in attendance are crowded and cramped. This condition often develops restlessness which is reflected on the dignity of the meeting shortly after the session is in progress, continuing more or less intermittently throughout the session. The width of seating blocks should be limited to from 10 to 12 chairs, for the convenience of the audience in assembling and departing. Furthermore, persons leaving early or coming late would not then disturb the session seriously by passing out in front of a number of people.

In arranging the set-up of the meeting room special attention should be given to the entrances and exits. These should preferably be in the rear or on a side near the rear of the room. A most annoying condition at our meetings has been the noise of conversation in the lobby which is carried through the entrances and exits. For several reasons it is undesirable to entirely close the entrance and exit doors and under such circumstances the writer is of the opinion that a screen should be placed in front of each entrance. This will not only shut off

external noises but eliminate the distraction to those reading papers caused by the opening and closing of doors. As a further precaution it is believed that a sign reading "Meeting in Session, Please Observe Quiet" posted at the meeting room entrance would have a desirable effect.

On the elevated speakers' platform there should be a stand or table of convenient height at which the person holding the attention of the audience should stand, whether he be the chairman directing the meeting or a speaker. In large meeting rooms, such as those held by our general sesesions, amplifiers for directing the speaker's voice to to all points of the hall have been much in need. The writer is of the opinion that the desk for the chairman, clerk and stenographer should be at the front of the room between the speakers' platform and the first row of seats. At the rear of the room near the entrance there should be a table for the monitor.

A most important item in the setting of a meeting room is the location of the screen for stereopticon or moving picture illustrations and the machines for rendering these services. It is common in meetings to locate the stereopticon machine in the center aisle, where it is not only in the way of the audience in arriving and departing, but also an obstruction to the vision of those in the room to the rear of the operator. Furthermore, it is a distraction to persons in the immediate vicinity of the machine due to the noise of the operation and the glare of side

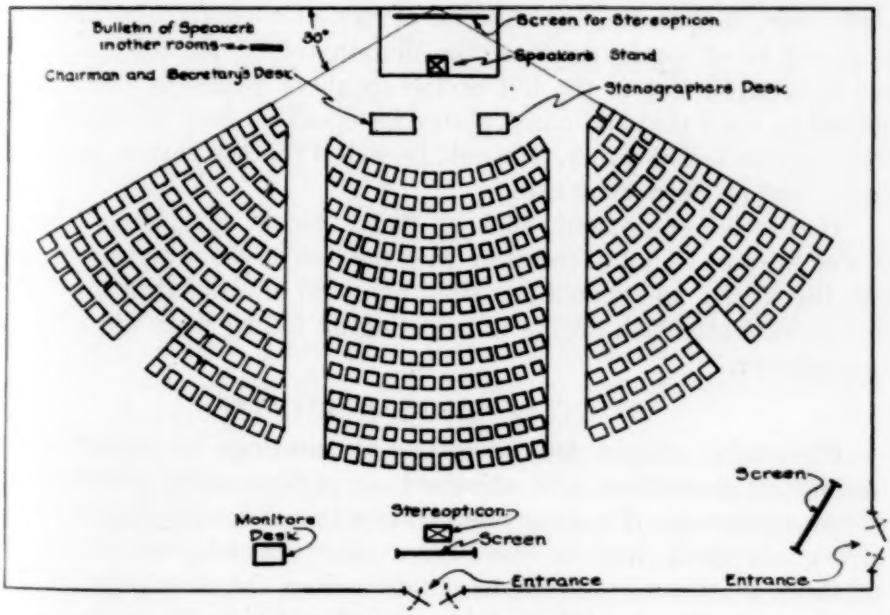

FIGURE II—*Plan View of Meeting Room*

lighting when pictures are changed. The screen for stereopticon use should, in the writers' opinion, be either directly behind the speakers' platform or slightly to the right. It should be of such size that the bottom of the picture shown can be at least 1 foot over the head of the speaker, who should be equipped with a pointer sufficiently long to direct attention to any portion of the illustration shown on the screen. This will remove the speaker from the line of vision of a portion of the audience and at the same time eliminate the shadows caused by his head and arms in pointing to the illustration. The stereopticon machine should preferably be set up in the rear of the room, directed at right angles to the screen and sufficiently elevated either in a balcony or on a special platform so that the rays of light will not be interfered with by persons arriving and departing during the meeting and so that proper focus may be made at the elevation mentioned. The signal for change of slides should be silent, such as an electric light controlled by a button switch in the hand of the speaker, thus eliminating the cumbersome and noisy make-shift signals so common at our meetings.

For the last two or three years it has been the custom in the meetings of this Association to maintain a bulletin announcing the speaker at other sectional meetings during sessions. This is considered a good practice providing its operation does not distract the attention of the audience. At one of our meetings the messenger received and transmitted information of changes of speakers by telephone, which was very annoying. At another meeting the monitor in charge was unusually noisy in operating the bulletin. If such a bulletin is to be operated it should be of special construction, illuminated by shaded lights and set at least 10 feet to the left of the speakers' platform. Its design should be such that the name plates for speakers may be exchanged with very little annoyance. It would be well if the Association had such equipment for permanent use.

Decorative equipment, such as flags, shields, etc., should be so placed in room as not to interfere with the line of vision to the speaker and the screen, and should be firmly mounted in order that they may not distract attention during the meeting by falling from the walls or tipping over.

CONDUCT OF MEETING BY OFFICERS

Obviously, officers are necessary at meetings to expedite the business in accordance with standards of parliamentary practice and common courtesy. The time honored practice of having the presiding officer and clerk, and in some cases other officials, seated on the speakers' platform is subject to criticism from the standpoint of distracting attention from the speaker who should logically be the center

of interest to the audience. In the writer's opinion, except for business purposes, officers should be conspicuous by their absence. The chairman need only occupy the speakers' platform in opening and closing the meeting and announcing speakers, and at other times he should have the status of a listener. But this state of affairs can only be brought about where meeting plans are perfected in advance and where officers are properly trained in their duties. Too frequently conversation between the chairman or secretary of meetings and pages and others who enter the room distracts interest from the speaker. In some of our meetings the chairman has been little short of a petty nuisance to the speakers, with more dignity than common sense, and the effect of seating him at a table on a level with the other listeners would I believe be for the good of all concerned.

It goes without saying that the chairman should have a full knowledge of his duties and the courage to discharge them. He should have a personality which automatically establishes a dignified atmosphere throughout the session. His enunciation should be clear. He should insist upon punctuality in the opening and closing of the meetings as well as in the length of papers and discussions. It takes an efficient and courageous chairman to do this, but his efforts will generally be appreciated by everyone. A meeting scheduled for 9:00 o'clock should be opened promptly on that hour regardless of the attendance. The chairman should communicate with the speakers in advance of the meeting to be sure that they will be in attendance in accordance with the schedule and that their wants are cared for.

Changes in the order of the program should be discouraged, but if permitted should be announced at the opening of the session. At the opening of the meeting the chairman should request those in attendance who desire to leave the room to refrain from doing so while papers are being read. The writer is of the opinion that on request from the chairman for no smoking during the meeting there would be gracious compliance. Speakers should be requested to seat themselves in the front row reasonably convenient to the chairman's desk, where they may be interviewed, if necessary, with as little distraction as possible and from which place they may ascend to the speakers' platform without delay and inconvenience to the audience.

The secretary should be seated at the desk with the section chairman and automatically perform his duties with as little distraction to the audience as possible. He should, if practical, make arrangements in advance for the turning in of copies of papers read. When serving as chairman he should observe the same rules of conduct mentioned for that officer.

A most important ally of the officials at meetings and one rarely present at our sessions is a monitor. In a well conducted meeting the services of a monitor are extremely valuable if the officers are to be permitted to perform their duties effectively. There should be one on duty in every meeting room where sessions are in progress. Monitors could be enlisted from some of the Boy Scout troops or high school classes. The monitor should have a special desk at the rear of the room, preferably near the entrance. Prior to the opening of the meeting he should see that the layout of the room by the hotel employes is in accordance with the established schedule, special attention being given to such matters as the seating arrangement; the location of the chairman's and stenographer's desk; the speakers' platform and stand; the decorations; stereopticon screen and equipment; the bulletin; all lighting equipment for the meeting room; the ventilating apparatus; the adjustment of the windows and shades; the pointer and drinking water for the speaker. The monitor should receive either from the speakers personally or others charged with their custody the slides to be used in connection with illustrated papers, and should arrange to return them, properly packed, to the owner. He should also attend to the changes in the bulletin announcing speakers at other meetings and reciprocate relative to speakers in the room under his charge. He should receive all special messages during the meeting and quietly deliver them in written memoranda to the chairman. He should keep a record of the attendance, reporting to the secretary, and should periodically adjust the heating and ventilating equipment to provide proper atmospheric conditions within the meeting room. He should thoroughly understand the lighting system for the meeting room in order to make adjustments necessary when stereopticon service is used.

The stenographer for all meetings should be provided with desk space reasonably convenient to the section chairman so that speakers may be identified, and to receive proper instructions and information for effectively reporting the progress of the session. Stenotype operators should be properly instructed in their duties in advance of the meeting, taking orders there only from the section chairman.

THE SPEAKER AND HIS STAGE SETTING

In advance of meetings the speakers should announce their presence to the chairman and receive any last minute instructions. They should be seated in the front row convenient to the chairman and the speakers' platform, thus avoiding the embarrassment and delay which invariably develops when the presence of speakers is unknown or their location in the room such that when called upon they must disturb all present in the aisle in which they are seated.

All arrangements for turning in copies of reports and for stereopticon service should be made before the meeting opens. The passing out of samples, reprints, etc., by the speaker prior to or during his presentation should be discouraged. These should be given to the monitor for distribution before or after the meeting and the request for announcement of this procedure made to the chairman. If large demonstrations, such as models, maps or charts are to be used, the speaker should arrange with the monitor in advance of the meeting for their display.

If the speaker must first attend another meeting and arrive late this fact should be made known to the proper section chairman. After introduction by the chairman and proper acknowledgment by the chair the speaker should always mount the speakers' platform. The so-called reticence and reserve which some speakers display by not mounting the speakers' platform frequently makes it difficult for persons in distant sections of the room to see and hear them, and usually weakens the presentation considerably. During periods of discussion the speaker should retain his place on the stage. If stereopticon illustrations are used, and it is practical to do so, speakers should shorten the time of their presentation by having a second person point to the important features being illustrated while the paper is being presented. Frequently speakers read a paper and then practically double their allotment of time by repetition in demonstrating with stereopticon illustrations. The practice of breaking the presentation of papers by such demonstrations is a weakness in our programs which could be avoided if arrangements were made for assistance in advance.

In conclusion, I desire to say that by comparison the A. P. H. A. meetings are generally well conducted, their weaknesses being an inheritance of custom and lack of training by section officers, seasoned with an element of courtesy to the individual which gives way to the efficient organization of a well balanced machine. The keynote is mutual coöperation and team work, with the executive officers of the Association modestly directing the stage with dignity and discipline from behind the screen.

Relations Between Health Departments and Hospitals.*

THE relations which have grown up between hospitals and health departments in recent years have been discussed at several meetings of the American Public Health Association, more particularly since the Boston meeting in 1923 when considerable interest in the subject was shown.

In 1926 the Association together with the *Modern Hospital Magazine* collected some information regarding the extent and form of coöperation between hospitals, dispensaries, etc., and health departments in the fields of laboratory examinations, hospitalization of communicable diseases, and maintenance of public health clinics, in cities of 40,000 population and over. The information secured showed that a goodly number of hospitals had certain working relationships or agreements with municipal, county or state health departments.

The Association believed it would be helpful both to health officers and to hospitals, to have more information on the exact nature of this coöperation. The undersigned committee was appointed by the chairman of the Committee on Administrative Practice to make this inquiry. Three members were suggested informally by the president of the American Hospital Association, including the chairman of that organization's Committee on Public Health Relations.

A contribution of $1,500 was secured from private sources to finance the work. The office of the American Public Health Association assumed responsibility for the collection, analysis and tabulation of facts.†

The committee met in February, 1927, and agreed upon a plan of study, and again in September to review the facts collected and to determine conclusions. This report was then presented in substance to the full Committee on Administrative Practice and accepted thereby.

The study embraced the character and extent of the working relationships between public health departments (municipal, county or state) in cities of 30,000 population and over with general, maternity,

* Report of a Study by the Committee on the Study of the Relations of Health Departments and Hospitals, a sub-committee of the Committee on Administrative Practice, presented to the Health Officers Section of the American Public Health Association at the Fifty-sixth Annual Meeting at Cincinnati, O., October 19, 1927.

† The committee appreciates the services of Anna C. Phillips, R.N., who made the necessary field visits.

and children's hospitals of 25 beds and more, and clinics and health centers unattached to hospitals in these cities. Hospitals directly under health department control were, of course, excluded.

The specific areas in which coöperation was studied were 3, namely, laboratories, hospitalization of communicable diseases and clinics. For the purposes of this inquiry, coöperative working relations were defined as follows:

Laboratory Service—Examinations made for a hospital by a health department or examinations made for a health department by a hospital, with or without payment for the work.

Hospitalization of Communicable Diseases—The care in non-departmental hospitals of scarlet fever, diphtheria, measles, whooping cough, tuberculosis, syphilis, gonorrhea or smallpox at the request of, or in coöperation with, a health department, whether paid for or not from public funds.

Maintenance of Clinics of Public Health Interest—Joint operation, or aid by health departments in personnel, supplies or funds to the operation by a hospital of clinics of generally recognized public health importance, i.e., prenatal, preschool, well baby (infant welfare), tuberculosis, venereal disease, dental hygiene, hookworm and malaria, and also of some clinics in which the public health responsibility may be considered debatable—eye (all cases), refraction only, ear, nose and throat, mental, child guidance, periodic health examination, orthopedic and trachoma.

A summary of the work done follows:

1. Letter and questionnaire to health officers in 247 cities representing 242 cities over and 5 cities under 30,000 population; supplemented by a follow-up letter to those not replying and a notice regarding the study in the Association's monthly news letter to health officers for June, 1927.

2. Letter and questionnaire to 1,365 general, maternity and children's hospitals in the 247 cities, including 28 dispensaries, health centers, etc., in 12 of the cities selected tentatively for field visit because of unusual situations disclosed by the information furnished.

The replies from hospitals were used to elucidate the situations reported upon by health officers. They also constitute the only source of information for those cities from which no official reply was received.

The percentages of responses to both inquries, according to size of city are presented in Table I.

3. Correspondence with health officers to secure further information on the details of situations reported upon and to clarify replies which were not definite or which conflicted with the facts furnished by local hospitals.

4. Visits to cities in which unusual types of coöperation have developed to secure opinion regarding the advantages, desirability and details of operation.

The facts furnished cover about one-half of all the cities under 100,000 population and over 80 per cent of those of 100,000 and more.

The outstanding general impression from the study is that there have grown up a number of specific and evidently useful forms of coöperation between health departments, hospitals, and various voluntary agencies, and this coöperation has developed spontaneously and

TABLE I

PERCENTAGE OF REPLIES FROM HEALTH OFFICERS, HOSPITALS, ETC., CLASSIFIED ACCORDING TO SIZE OF CITY

Population Group*	Number of Cities	Per Cent Replies from Health Officers	Number of Hospitals, Etc.	Per Cent Replies from Hospitals, Etc.
Group I**				
30,000–40,000	64	41	139	23
Group II				
40,000–70,000	83	48	220	26
Group III				
70,000–100,000	32	47	141	20
Group IV				
100,000–200,000	35	80	204	29
Group V				
200,000–300,000	12	75	113	26
Group VI				
300,000–400,000	5	80	57	26
Group VII				
400,000 and over	16	88	491	35
Total	247	55	1365	29

* Based on the Federal Census of 1920
** Includes five cities under 30,000 population

without propaganda. The officials of the participating organizations in each community have acted on the basis of immediate local situations without much, if any, knowledge that similar undertakings are growing up elsewhere.

The main advantages of such coöperation in the opinion of those participating in such programs are: (1) Economy; (2) the ability to cover special fields to an extent not possible with the funds available directly for the health department; (3) better quality of service; (4) the possibility of reaching a wider audience through close contact with voluntary health organizations with their broad appeal; and, (5) the possibility of undertaking new services through pooling of resources, which could not be undertaken satisfactorily by one agency alone.

FINDINGS

The extent to which these various forms of coöperative relationships exist throughout the country is indicated by the number of cities reporting joint health work of this character, and the number of institutions (hospitals, dispensaries, health centers, and other voluntary health agencies and social agencies with health activities), involved in the information furnished. These facts are set forth in Table II, and commented upon in succeeding pages. The committee has had prepared a detailed summary of the types of coöperation found in each of the 148 cities reporting, and while this is too extensive to print, there are mimeographed copies in the office of the Association, available on request of any member.

TABLE II

EXTENT OF CÖOPERATION REPORTED ON BETWEEN HOSPITALS, DISPENSARIES, ETC., AND HEALTH DEPARTMENTS

Population Groups	Total Cities	Fields of Coöperation Reported Upon								
		Laboratory Service			Communicable Diseases			Clinic Service		
		No. Cities	Per Cent	No. Organizations Represented	No. Cities	Per Cent	No. Organizations Represented	No. Cities	Per Cent	No. Organizations Represented
I	64	22	34	36	12	19	23	18	28	14
II	83	38	46	60	20	24	29	34	41	65
III	32	20	63	37	10	31	17	8	25	16
IV	35	12	30	27	6	17	11	10	29	28
V	12	8	67	14	1	8	1	4	33	8
VI	5	4	75	21	1	20	4	1	20	10
VII	16	15	95	111*	6	38	9	12	75	58
Total	247	119	48	306	56	23	94	87	35	199

* Exclusive of an unstated number of institutions in cities in which health department furnishes service to any hospital upon request

Types of Coöperation in Laboratory Service—A new point of interest, not anticipated when the study was planned, is the extent to which health departments purchase laboratory service from privately operated hospitals. In Schenectady, N. Y., the health department pays $10,000 annually to a voluntary hospital for all the examinations, both for the department and for a municipally operated health center. In Dubuque, Ia., a private hospital supplies service to the health department for $200 a month. In Muskegon, Mich., a voluntary hospital does examinations for diphtheria, tuberculosis and gonorrhea for the health department on the basis of a fixed charge for each item.

Two interesting variations are in McKeesport, Pa., where the city provides a pathologist and the salary of a technician to a hospital's laboratory which does all examinations for the health department except urine and pathological specimens; and in Harrisburg, Pa., where one of the hospitals occasionally makes examinations for tuberculosis, syphilis and gonorrhea; and also of urine, feces, fowl and meat from slaughter houses, pneumonia typing and tuberculosis cultures, the city furnishing a technician to the hospital to assist with this work.

The reverse form of coöperation, in which hospitals use the health department laboratory, is chiefly for:

1. Examinations for acute communicable diseases—diphtheria, typhoid, tuberculosis, syphilis or gonorrhea
2. Examinations of the more unusual conditions with which hospitals rarely deal—rabies, malaria and plague, chemical analysis of food and drugs, milk and water
3. Checking the work of their own laboratories, as in diphtheria and syphilis

State health department laboratories are used fairly extensively both by city health departments and public and private hospitals for examinations for syphilis, and appear to be the chief reliance in many

of the smaller communities in respect to examination of food and drugs, milk and water, and for rabies.

One of the interesting situations disclosed by the study is the extent to which the health departments in the larger cities furnish laboratory service to non-medical voluntary organizations, such as settlements, day nurseries, neighborhood houses, and other philanthropic agencies. These ordinarily do not maintain laboratories but frequently need certain routine examinations. Boston, Los Angeles, Chicago and San Francisco present instances of this type.

In comparatively few cities does the health department receive payment for work done for hospitals, dispensaries, etc. In some localities the county health department pays the municipal laboratory for county work done, as in Springfield, O., where the city is paid $.50 for examinations for diphtheria, tuberculosis, gonorrhea, and of urine, and $1 each for chemical analyses of food and drugs, milk and water.

The question naturally arises: What should be the municipal or state health department control of the standards of work in hospital laboratories diagnosing communicable diseases? Of the procedures in privately owned laboratories furnishing similar services to hospitals? The steps already taken by state health departments in this respect are illustrated by Decatur, Ala., where the laboratory used by the municipal health department is an official branch of the State Department of Health; and by Albany, N. Y., where the private laboratory used by the health department is officially endorsed by the State Department of Laboratories and Research.

Types of Coöperation in Hospitalization of Communicable Diseases—The utilization by health departments of private general hospitals for the care of acute communicable diseases is now recognized as a sound policy which holds advantages for both groups. For the health department these are chiefly: (1) economy in the cost of controlling communicable diseases; and (2) provision of better service.

The hospital derives advantage from the arrangement due to: (1) the broader service it can offer internes; (2) the student nurses being able to receive desirable experience in this special field at their own institution instead of being sent to other hospitals; and (3) payment from public funds for patients with communicable diseases who are unable to pay or are hospitalized against their will.

Typical of situations in which the payment for hospitalization comes from the health department is Newport, R. I., where a voluntary hospital cares for scarlet fever, diphtheria, syphilis and gonorrhea for $3.50 a day, paid through the health department which exercises full control over admissions and discharges, a communicable disease hos-

pital being used only in extensive emergencies when the cases exceed the capacity of the contagious disease unit of the private institutions. In Pittsfield, Mass., a voluntary hospital receives all types of communicable diseases excepting tuberculosis and smallpox, the city providing an annual subsidy of $5,500 for the maintenance of the service, plus $21 per week per patient cared for, paid through the health department.

Among the cities in which care is furnished and payment made other than through the health department, is Camden, N. J., where two voluntary hospitals provide the city with service, one admitting scarlet fever, diphtheria, measles, syphilis, gonorrhea and smallpox, and the other, syphilis and gonorrhea only. No specific payment is made for the care furnished patients with communicable diseases as it is considered to be included in annual appropriations of $25,000 made to each institution by the City Commissioner and the County Board of Freeholders.

Four voluntary hospitals in LaCrosse, Wis., receive syphilis and gonorrhea, one of them in addition receiving all other types of cases, for which the city appropriates $1,200 annually to cover the cost of the care of indigents, the county paying for county charges and transients. Examples of payment by a per capita daily or weekly rate are: Chicopee, Mass., hospitalizing all cases except tuberculosis and smallpox in two private hospitals for from $18 to $21 per week; Jamestown, N. Y., hospitalizing all types of cases for $4 a day; and Stamford, Conn., where $14 a week is paid for town (indigent) cases of communicable disease, including smallpox.

Some dozen cities which report they do not maintain any municipal hospitals for communicable disease purchase service from nearby cities which have such hospitals. For example, Lakewood, O., buys such care from the Cleveland City Hospital, the department of health paying at the rate of $5 per day; cases of communicable disease in New Britain, Conn., are cared for in Hartford, the Department of Charities carrying the responsibility of payment for those unable to pay.

An interesting point is the fact that coöperation between hospitals and health departments in this field is reported mainly from cities under 200,000 population, only 8 of the cities over 200,000 noting arrangements in this respect.

Not the least significant of the entrance of the private hospital into this public health field, is the number which receive smallpox—a situation which seems to presage the doom of the "pest house."

The numerous and successful instances of coöperation in this field suggest their desirability and community value. In the development of such programs it should be recognized that in the hospitalization of

communicable disease, the responsibilities of the health department relate primarily to approval of quarters, equipment, etc., and to the admission and release of patients, but do not extend to administrative responsibility within the hospital.

The various methods of payment in effect indicate that reimbursement of privately operated hospitals on a per capita per diem basis is well established; also that per capita payment for the amount of care furnished plus an annual subsidy to cover hospital overhead is in successful operation. The last plan seems the fairest to the hospital.

Attention has been called to the fact that payment is often made from city or county funds, but not through the health department; also that appropriations from public funds sometimes cover a variety of hospital services, including the care of patients with communicable diseases, the amount available for this purpose not being separately listed.

In the interest of sound and uniform accounting for health work, methods of payment of public funds through other channels than the health department should be abandoned in favor of including all amounts expended for the control of communicable disease, including hospitals, in the health department's budget.

Types of Coöperation in Public Health Clinics—The field of public health clinics includes so many different kinds of service and touches so many agencies other than hospitals, it naturally presents a greater opportunity for coöperative effort than laboratory service or communicable disease care.

Coöperation between hospitals and health departments in this field in general consists of the furnishing by the hospital of quarters and equipment while the health department provides some or all of the medical, dental, nursing, social service or clerical personnel. The individual situations vary from complete control of the clinic by the hospital, with the health department merely coöperating in public health relations or perhaps by furnishing a flat financial subsidy, to the other extreme in which the hospital furnishes only the quarters and the health department provides all the personnel, supplies, drugs, and other material.

The numerous examples reported upon fall into two main groups: The first is in the field of clinic service which largely involves the diagnosis and treatment of disease, such as tuberculosis and venereal disease clinics. The location of such clinics in the organized out-patient department of a hospital makes available diagnostic and treatment resources which are seldom provided in their entirety for isolated clinics. The second type of clinic is exemplified by the baby health station or the

prenatal clinic in which the diagnostic and treatment facilities of the out-patient department are less important.

There appear, however, to these services as to the others, certain advantages from coöperation between the hospital and the health department; namely, economy to the health department (therefore to the community) through the use of the hospital plant and personnel, which otherwise would have to be provided by the health department. The same aspect of economy of plant and personnel applies to coöperation between health departments and voluntary health organizations, such as the Visiting Nurse Association, tuberculosis societies and others.

Representative examples of the coöperation illustrate a wide range of organizations involved and much diversity in the services jointly carried. Thus the health departments of Orange, East, West and South Orange and Maplewood, N. J., jointly support a venereal disease clinic at a voluntary hospital, the budget for which is prepared at the beginning of the year and each locality assessed on a per capita basis. The Orange Department of Health supplies social and clerical service, equipment, stationery and postage. The same hospital is active in programs for vaccination against smallpox and immunization of preschool children against diphtheria, the health department supplying the material.

In Pontiac, Mich., one of the municipal well baby stations is conducted at the Visiting Nurse Association, the health department furnishing the medical nursing, and clerical personnel for tuberculosis and venereal disease clinics conducted at the county physician's office, and furnishes the quarters for a dental clinic conducted by the board of education and for an orthopedic clinic conducted by a county orthopedic association (Rotary Club). By agreement with a municipal and private hospital children are operated upon for the removal of tonsils and adenoids at a flat rate of $3, the department paying for indigent cases.

In many states hospitals and dispensaries are coöperating with state health departments in the fields of tuberculosis, social and mental hygiene and orthopedic conditions in children. Thus, for venereal disease clinics in private hospitals the state department provides a subsidy in Brockton, Mass., the personnel in Chester, Pa., and Lima, O., and in Holyoke, Mass., $1,000 annually. In Scranton, Pa., the state provides psychiatric social service for a mental clinic conducted by an independent dispensary under the direction of the psychiatrist in charge of the mental disease hospital of the Scranton Poor District.

The instances of correlated work in public health clinics between health departments and voluntary health agencies are both numerous

and original in their application of coöperative principles. In addition to those previously mentioned in connection with hospital programs, the following may be cited as unusually suggestive. In Hartford, Conn., the Visiting Nurse Association furnishes the nursing service at cost to the health department for its infant welfare and preschool stations and for tuberculosis and venereal disease clinics conducted by the department at a voluntary dispensary maintained by the Community Chest. The state department also conducts a clinic for juvenile tuberculosis at the same dispensary in coöperation with the Visiting Nurse Association, and furnishes the salvarsan for the dispensary's venereal disease clinic.

In the larger cities coöperation in regard to clinics takes various forms. One of the most frequent is in the conduct by health departments of tuberculosis clinics in hospital out-patient departments, the hospital providing the quarters and the department the medical and nursing service. In Baltimore, Md., the department of health furnishes the medical, nursing and clerical personnel, supplies and drugs, and pays $1,000 a year to a voluntary hospital for the maintenance of a tuberculosis clinic and a dental clinic for school children. Another hospital coöperates with the state in the operation of a clinic for venereal diseases, the state paying the cost. This same institution reports a close working relationship with the visiting nurses of the city and state health departments. There is an agreed area distribution of the city between hospitals and the health department in regard to prenatal care.

In Boston, Mass., a habit clinic conducted by one of the voluntary hospitals is furnished physicians and a psychiatric social worker by the health department. A dispensary receives $1,000 a year from the state for a child guidance clinic, furnishing quarters, supplies and material, the state providing the personnel. The same dispensary conducts a cancer clinic, the state paying $500 annually for rent of the radium used. This institution also holds a well baby clinic for which the city department supplies the personnel.

Other Forms of Coöperation—In addition to the relationships in three specific fields covered, it is reported that hospitals, health and social agencies and health departments are associated in such campaigns as May Day, preschool child health examinations, sight saving and immunization against diphtheria. Some of the unusual public health progams reported are in the following cities: Danville, Ill., where the attending staff of a private hospital held a course of free lectures in public health last year, a feature to be continued this year; Denver, Colo., where all public and private health groups recently conducted a series of meetings dealing with the question of medical service for chil-

dren attending the city's parochial schools; Rockford, Ill., which holds a "Better Health Week" in which all coöperate; and Covington, Ky., where a voluntary hospital carries on an active toxin-antitoxin campaign, the city appropriating $300 for the service, in addition to an appropriation of $2,400 for other work.

CONCLUSION

The committee does not think that this study has reached a stage at which specific recommendations should be made, defining the scope, policy and methods of coöperation between health departments, hospitals and other voluntary agencies. A few comments and suggestions have been made in the course of this report, but the committee wishes at present to make only one recommendation. It is urged that before the establishment or extension of health department services in the fields of laboratory work, care of communicable diseases or clinics of public health interest, consideration be given to the possibility of coöperation with hospitals or other agencies, with the aim of providing the maximum service to the public at the minimum cost.

Whatever value attaches to the present report will be in assisting the officers of both health departments and of hospitals to become familiar with plans of coöperation which have been found actually at work, to evident mutual advantage, in many places throughout the country. It is never wise to attempt to force coöperation. It is well that coöperative endeavors be conscious and considered instead of merely sporadic, and that they shall be able to learn from one another as to policies and methods.

MICHAEL M. DAVIS, Ph.D., *Chairman*

HAVEN EMERSON, M.D.	W. C. RUCKER, M.D.
W. S. RANKIN, M.D.	GEORGE C. RUHLAND, M.D.
D. L. RICHARDSON, M.D.	W. F. WALKER, DR.P.H., *Secretary*

NOTE: This is a condensation of the full report. Mimeographed copies have been prepared of the types of coöperation found in each of the 148 cities reporting, and are available to any member upon request.

Tattoo Regulations

IN only one city in the country is tattooing prohibited, and in only three is it regulated, according to Marvin D. Shie, M.D., writing in the *Journal of the American Medical Association* for January 14, 1928. Dr. Shie points out that the number of infections due to tattooing is not inconsiderable, although less today than formerly. He suggests that the removal of tattoo marks should be undertaken only by a qualified physician, and that this work should fall within the scope of state medical practice acts.

A Suggested Monthly Check Sheet*

Based Upon Appraisal Form for Rural Health Work, A.P.H.A.

H. S. MUSTARD, M. D., FELLOW A. P. H. A.

Health Officer, Rutherfora County, Murfreesboro, Tenn.

THE primary object of this paper is to present a simple reporting device, the use of which will help the rural health administrator to maintain balance in his program and which will, at the same time, provide him with the data which he needs for monthly checking of particular health services. That the health officer has had difficulty on both these counts is generally admitted, and those engaged in administrative positions in the health field have given much thought to the problem of reports—what data should be reported and in what arrangement these data might best be presented.

It would seem almost axiomatic that a report should be made up of material representing accomplishments, and that this material should be so arranged that the reader might easily evaluate the work reported An ideal type of report would contain figures representing results, listed by the reporter, and subjected to qualitative analysis and quantitative measurement by the reader. Such a scheme, however, carries with it certain inherent difficulties, the first of which is that results are not achieved upon a monthly basis. And too, many factors, uncontrolled, difficult of correlation and often unrecognized, enter into accomplishments which might appear to be the direct result of health work; and the administrator must be careful lest he make claims prematurely. For these reasons the usual monthly report is not set up to show the *results* of health work, but instead provides for the reporting of activities of the organization. If we are justified in assuming that a certain activity, if carried on continuously for a sufficient length of time, will attain a specific result, this practice seems sound; it is generally accepted.

In considering the methods of presentation of material in the monthly report, it becomes increasingly apparent that very few of those engaged in rural health work are satisfied with the type of reports used. From such presentation of figures it is difficult to determine organization trends or program balance. Monthly report forms at present in use

* Read before the Health Officers Section of the American Public Health Association at the Fifty-sixth Annual Meeting at Cincinnati, O., October 18, 1927.

RURAL APPRAISAL FORM, A.P.H.A. REPORTING VITAL STATISTICS AND COMMUNICABLE DISEASES

ITEM	STANDARD	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
BIRTHS REPORTED (WHITE)	50 PER MONTH	42/50	101/100	143/150	179/200	220/250	264/300	311/350	374/400				
BIRTHS REPORTED (COLORED)	20 PER MONTH	16/20	34/40	56/60	66/80	83/100	98/120	116/140	134/160				
CASES OF TYPHOID	7 PER DEATH	8/14	10/14	15/14	15/14	18/14	28/21	34/28	44/42				
CASES OF DIPHTHERIA	15 PER DEATH	2/0	4/0	4/0	5/0	5/0	7/0	10/0	11/0				
CASES OF SCARLET FEVER	50 PER DEATH	0/0	1/0	4/0	4/0	4/0	5/0	6/0	8/0				
CASES OF MEASLES	100 PER DEATH	2/0	23/0	55/0	89/0	99/0	100/0	100/0	100/0				
CASES OF WHOOPING COUGH	25 PER DEATH	22/0	31/25	36/50	36/50	41/50	43/75	44/100	45/125				

CHART I—ARRANGEMENT OF THE CHECK SHEET

The items selected are from the section of the check sheet upon which vital and morbidity statistics are recorded. The first or left hand column shows the items to be considered; the second column carries the monthly standard against which the item is to be checked. The standards for white and colored births are based upon population unit; the case rate standards for communicable diseases are common to all rural areas. The remaining vertical columns provide a block for checking each item month by month. It will be noted that each block is divided by a diagonal line, running downward from right to left, converting the report item for each month into the form of a fraction. In each instance the denominator represents an accumulation of the monthly standard of work to be done; the numerator represents actual accomplishment. For instance, the monthly standard for colored births is 20. Therefore in January this number should have been reported. Actually, reports of only 16 colored births were received. For the month of February, the standard demands 20 more colored births, and the denominator accumulates to 40; the numerator for February is made up of the 16 reports received in January plus 18 more received in February. Thus at the end of the second month it becomes apparent that there had been received 6 births less than could be expected, and at the end of eight months the deficiency had become 26—the difference between numerator and denominator.

The communicable diseases case report standards require no particular explanation. It illustrates quite clearly that whooping cough is not reported satisfactorily.

show the record of monthly activity by item, and on the same line in a parallel column, the total of that item for the year to date. Some of these reports, for purposes of comparison, carry a record of activities for the corresponding month of the year past. Thus the reader of the report is furnished with figures setting forth so many cases of typhoid reported, so many school children examined, or so many immunizations against diphtheria. These data are valuable and interesting, but unless the reader of the report is familiar, in most minute detail, with the area reported upon, it is probable that he will not recognize the implication of many significant figures; nor will he be in a position to make

COMMUNICABLE DISEASE CONTROL

ITEM	STANDARD	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
VISITS TO DIPHTHERIA	3 PER CASE	11 / 6	20 / 12	20 / 12	24 / 15	24 / 15	27 / 21	41 / 30	51 / 33				
VISITS TO TYPHOID	3 PER CASE	11 / 24	26 / 30	52 / 45	63 / 45	81 / 54	102 / 78	143 / 102	205 / 132				
VISITS TO SCARLET FEVER	2 PER CASE	0 / 0	1 / 2	9 / 8	9 / 8	9 / 8	9 / 10	12 / 12	20 / 14				
VISITS TO MEASLES	1 PER CASE	0 / 2	23 / 23	56 / 55	77 / 89	83 / 99	83 / 100	83 / 100	83 / 100				
VISITS TO WHOOPING COUGH	1 PER CASE	8 / 22	19 / 31	22 / 36	22 / 38	27 / 41	29 / 43	33 / 44	33 / 45				
CONSULTING DIAGNOSTIC SERVICE	1+PER MONTH	4 / 1	7 / 3	13 / 4	17 / 6	21 / 7	21 / 9	27 / 10	28 / 12				
IMMUNIZATIONS · T.A.T. TO PRE-SCHOOL	60 PER MONTH	16 / 60	26 / 120	28 / 180	29 / 240	49 / 300	67 / 360	98 / 420	135 / 480				
T.A.T. SCHOOL	60 PER MONTH	117 / 60	155 / 120	214 / 180	323 / 240	332 / 300	339 / 360	381 / 420	428 / 480				
TYPHOID	100 PER DEATH	27 / 200	192 / 200	293 / 200	616 / 200	663 / 200	980 / 300	1512 / 400	2054 / 500				
SMALLPOX	90 PER MONTH	51 / 90	317 / 180	555 / 270	682 / 360	706 / 450	738 / 540	777 / 630	934 / 720				

CHART II—ILLUSTRATIVE ITEMS ON FIELD WORK · CONCERNED WITH THE CONTROL OF COMMUNICABLE DISEASES

The standard for visits to cases are those of the *Appraisal Form for Rural Health Work*. With the exception of typhoid immunization the other standards are based upon population. For instance, the yearly standard for consulting diagnostic service is 50 calls per 100,000 population. The population unit in Rutherford County is 32962. The total for the year in this county would be 17 or a little more than 1 per month. The standard for toxin-antitoxin immunization in preschool children is 20 per cent of the preschool population. The preschool population unit is 3461—total for year 692, approximately 60 per month.

Toxin-antitoxin in grade schools: 10 per cent of grade school population; population unit 7154; total for year 715; for month 60.

Smallpox: 3 per cent annually of total population; 990 per year; 90 per month (approximately).

a critical analysis of the situation reflected in the report, as he would be were there listed with each item reported a standard for comparison.

All of the above discussion is preliminary to consideration of such standards and their utilization in reports. The *Appraisal Form for Rural Health Work,* recently developed by the Committee on Administrative Practice, American Public Health Association, provides a most valuable instrument for measuring health department activities. Standards for activities are generally of two kinds: those common to all rural areas, as the reporting of 7 typhoid cases for every typhoid death, and those based upon population unit and consequently applicable only to the particular county or district concerned. Morbidity report stand-

HEALTH OF THE CHILD

ITEM	STANDARD	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
PRE-NATAL · CASES UNDER SUPERV'N	16 PER MONTH	24 / 16	43 / 32	65 / 48	90 / 54	110 / 80	125 / 96	152 / 112	164 / 128				
VISITS TO PRE-NATAL CASES	47 PER MONTH	80 / 47	163 / 94	250 / 141	342 / 188	453 / 235	521 / 282	616 / 329	689 / 376				
DELIVERIES IN HOSPITALS	7 PER MONTH	0 / 7	0 / 14	0 / 21	0 / 28	1 / 35	4 / 42	6 / 48	17 / 55				
INFANT · NURSING VISITS	88 PER MONTH	151 / 88	335 / 176	490 / 264	681 / 352	924 / 440	1071 / 528	1305 / 616	1538 / 704				
MEDICAL CONFERENCES	150 PER MONTH	18 / 150	44 / 300	57 / 450	75 / 600	109 / 750	172 / 900	220 / 1050	290 / 1200				
NURSES CONFERENCES	42 PER MONTH	0 / 42	2 / 84	6 / 126	12 / 168	18 / 210	18 / 252	19 / 294	25 / 336				
PRE-SCHOOL · NURSING VISITS	30 PER MONTH	259 / 30	499 / 60	732 / 90	1009 / 120	1346 / 150	1521 / 180	1866 / 210	2074 / 240				
SCHOOL CHILD · PHYSICAL EXAMINATION	150 PER MONTH	298 / 150	689 / 300	1337 / 450	1371 / 600	1401 / 750	1433 / 900	1501 / 1050	1608 / 1200				
PARENTS PRESENT	25 %	16 / 75	22 / 172	40 / 334	40 / 317	40 / 350	40 / 358	40 / 375	85 / 402				
TONSIL & ADENOID	13 PER MONTH	11 / 13	26 / 26	87 / 39	93 / 52	96 / 65	97 / 78	113 / 91	122 / 104				
NURSING VISITS	100 PER MONTH	85 / 100	192 / 200	333 / 300	432 / 400	526 / 500	611 / 600	707 / 700	733 / 800				
SCHOOL BUILDINGS INSPECTED	8 PER MONTH	NR / 8	NR / 16	NR / 24	NR / 32	NR / 40	NR / 48	33 / 56	41 / 64				

CHART III—DERIVATION OF STANDARDS

Prenatal under supervision:
25 per cent of total births
Total births 738—Total for year 185
Approximate for month 16

Visits to Prenatal cases:
750 visits per 1,000 total births
Total births 738—Total for year 553
Approximate for month 47

Deliveries in Hospital:
10 per cent total births—Total births 738
Total for year 74—Approx. for month 7

Visits in behalf of infants:
1500 per 1000 live births
Total for year 1050
Approximate for month 88

Visits to Medical Conference:
2500 visits per 1000 live births
Total for year 1755
Approximate for month 150

Visits to Nursing Conference:
800 visits per 1,000 live births
Total for year 500
Approximate for month 42

Nursing Visits to Preschool:
100 visits per 1,000 preschool population
Preschool population 3461
Total for year 346
Approximate for month 30

ards are thus provided and can be used on a monthly basis. By simple computations other monthly standards are easily arrived at, usually by dividing the year's quota by 12.

In order to illustrate the practicability of the utilization of this standard in the monthly report, a number of charts have been prepared from the check sheet in use in Rutherford County, Tenn.

SANITATION

ITEM	STANDARD	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT.	NOV.	DEC.
INSPECTIONS	50 PER MONTH	39 / 50	75 / 100	120 / 150	193 / 200	252 / 250	482 / 300	673 / 350	834 / 400				
TUBERCULIN TESTS	100% (NO. TESTED / NO. DUE)	0 / N.R	106 / 106	178 / 227	178 / 227	178 / 239	203 / 251	203 / 251	261 / 353				
INSPECTION DAIRY FARMS	8 PER MONTH	23 / 8	42 / 16	72 / 24	82 / 32	99 / 40	130 / 48	141 / 48	145 / 64				
RAW MILK UNDER 50,000	95%	13 / 22	20 / 34	28 / 44	33 / 51	40 / 87	41 / 89	41 / 89	41 / 89				
PASTEURIZED MILK UNDER 50,000	100%	7 / 9	8 / 14	10 / 18	12 / 20	13 / 23	14 / 24	15 / 25	15 / 26				
PASTEURIZED MILK % OF WHOLE	100%	40 / 100	40 / 100	40 / 100	40 / 100	40 / 100	40 / 100	40 / 100	40 / 100				

CHART IV—DERIVATION OF STANDARD

Inspections:
1500 inspections per 100,000 population
500 for year—Approximately 50 per month

Inspection of Dairy Farms:
Standard semi annual
45 farms—90 inspections for year
Approximately 8 per month

LABORATORY

ITEM	STANDARD	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT.	NOV.	DEC.
TYPHOID FEVER	30 PER DEATH	19 / 60	45 / 60	61 / 60	74 / 60	88 / 60	104 / 90	132 / 120	169 / 180				
DIPHTHERIA	100 PER DEATH	38 / 0	101 / 0	166 / 0	188 / 0	191 / 0	212 / 0	278 / 0	295 / 0				
TUBERCULOSIS	5 PER DEATH	0 / 25	10 / 45	19 / 60	24 / 70	32 / 80	38 / 95	39 / 130	43 / 145				
SYPHILIS	6 PER CASE	3 / 0	26 / 42	39 / 48	53 / 66	67 / 96	79 / 108	84 / 138	106 / 138				
GONORRHEA	3 PER CASE	5 / 0	9 / 0	11 / 12	12 / 12	14 / 12	15 / 12	17 / 12	17 / 12				
MILK	6 PER MONTH	54 / 6	89 / 12	116 / 18	138 / 24	176 / 30	186 / 36	197 / 42	202 / 48				
WATER. (PUBLIC)	1 PER MONTH	17 / 1	32 / 2	49 / 3	66 / 4	84 / 5	102 / 6	118 / 7	136 / 8				
WATER (SEMI PUBLIC)	2 PER MONTH	3 / 2	3 / 4	4 / 6	4 / 8	4 / 10	5 / 12	12 / 14	14 / 16				

CHART V—DERIVATION OF STANDARD

Milk:
10 examinations per 1,000 urban population
Urban population 7000
70 examinations for year
6 per month

Water:
Standard 1 examination per month
Rural:
1 examination per 1,000 rural population

NURSING SERVICE

ITEM	STANDARD	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
VISITS TO TYPHOID CASES	3 PER CASE	11 / 24	26 / 30	52 / 45	63 / 45	81 / 54	102 / 78	143 / 102	205 / 132				
TYPHOID INOCULATIONS	100 PER DEATH	27 / 200	192 / 200	293 / 200	616 / 200	663 / 200	980 / 300	1512 / 400	2051 / 600				
PRE-NATAL CASES	16 PER MONTH	24 / 16	43 / 32	65 / 48	90 / 54	110 / 80	125 / 96	152 / 112	164 / 128				
DELIVERIES IN HOSPITAL	7 PER MONTH	0 / 7	0 / 14	0 / 21	0 / 28	1 / 35	4 / 42	6 / 49	17 / 56				
VISITS TO INFANTS	88 PER MONTH	151 / 88	335 / 176	490 / 264	681 / 362	924 / 440	1071 / 528	1305 / 616	1598 / 704				
INFANTS TO MEDICAL CONFERENCE	150 PER MONTH	18 / 150	44 / 300	57 / 450	75 / 600	109 / 750	172 / 900	220 / 1050	290 / 1200				
SCHOOL EXAMINATIONS	150 PER MONTH	298 / 150	689 / 300	1337 / 450	1371 / 600	1401 / 750	1433 / 900	1501 / 1050	1608 / 1200				
PARENTS PRESENT	25%	16 / 75	22 / 172	40 / 334	40 / 317	40 / 350	40 / 358	40 / 375	85 / 402				
TEETH CLEANED	150 PER MONTH	17 / 150	35 / 300	70 / 450	87 / 600	90 / 750	90 / 900	91 / 1050	91 / 1200				

MEDICAL SERVICE

ITEM	STANDARD	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
TYPHOID CASES	7 PER DEATH	8 / 14	10 / 14	15 / 14	15 / 14	18 / 14	26 / 21	34 / 28	44 / 42				
TYPHOID INOCULATION	100 PER DEATH	27 / 200	192 / 200	293 / 200	616 / 200	663 / 200	980 / 300	1512 / 400	2051 / 600				
SMALLPOX VACCINATION	90 PER MONTH	51 / 90	317 / 180	535 / 270	682 / 360	706 / 450	738 / 540	777 / 630	934 / 720				
VENEREAL DISEASE CLINIC REGISTRATION	22 NEW PER MONTH	0 / 22	7 / 44	10 / 66	11 / 88	14 / 110	25 / 132	25 / 154	32 / 176				
VENEREAL DISEASE CLINIC VISITS	10 PER NEW PATIENT	14 / 0	70 / 70	112 / 100	144 / 110	199 / 140	233 / 250	256 / 250	305 / 320				
RAW MILK UNDER 50,000	95%	13 / 23	20 / 36	28 / 48	33 / 55	40 / 72	41 / 74	41 / 74	41 / 74				
INFANTS EXAMINED	150 PER MONTH	18 / 150	44 / 300	57 / 450	75 / 600	109 / 750	172 / 900	220 / 1050	290 / 1200				
SCHOOL CHILDREN EXAMINED	150 PER MONTH	298 / 150	689 / 300	1337 / 450	1371 / 600	1401 / 750	1433 / 900	1501 / 1050	1608 / 1200				
PARENTS PRESENT	25%	16 / 75	22 / 172	40 / 334	40 / 347	40 / 350	40 / 358	40 / 375	85 / 402				

CHARTS VI AND VII

Most of the items presented on these two charts have been presented on others. In Chart VI are illustrative items representing those activities in which a nursing service is concerned; Chart VII those items essentially medical. These items are grouped in this way for the guidance of division heads responsible for special fields within the general program.

In the application and interpretation of this check sheet method one should be careful lest he follow too blindly. Should the administrator be certain that an apparent deficiency in one activity is offset by concentration upon another it would be unwise to shift the program emphasis merely to score. On the other hand it should be recognized that the standards reflect group judgment, which is more apt to maintain balance than is individual opinion.

To avoid confusion it is necessary to state that this check sheet method is not a product of the Committee on Administrative Practice, and that this committee is in no way responsible for its deficiencies. Consideration of this method of reporting should not be confused with the soundness or lack of soundness of the standards set forth in the *Appraisal Form for Rural Health Work,* nor with the accomplishments or deficiencies in that particular county whose figures are shown.

American Association for Medical Progress

THE American Association for Medical Progress, Inc., a national lay organization, with headquarters at 370 Seventh Avenue, New York, N. Y., during the year 1927 contributed articles, supplied educational material for exhibits, and conducted lectures on the relation of experimental science to human welfare. Two pamphlets explaining the contribution of science to the control of smallpox and diphtheria were issued and widely distributed along with other publications of the association. Although the association does not formally engage in research, it assembled a considerable amount of available data on smallpox vaccination laws, on the previous vaccinal condition of smallpox patients, on authenticated cases of disasters supposed to have resulted from the use of toxin-antitoxin, and on the availability of dogs for medical schools and for research, with special reference to legal limitations, legal recognition of research needs, and extra-legal arrangements that interfere with research. One of the better known activities of the association was its coöperation in establishing a voluntary fund for the purchase of a home for John R. Kissinger, the first private who offered himself for experimental exposure to yellow fever inoculation under Major Walter Reed in 1900. The purpose of the association, as stated in its annual report for 1927, is "to encourage experimental research for the advancement of medical science; to inform the public concerning the methods and discoveries responsible for man's increasing control over animal and human diseases."

An Intensive Newspaper Crusade for the Control of Cancer

GEORGE A. SOPER, PH. D., FELLOW, A. P. H. A.

American Society for the Control of Cancer, New York, N. Y.

AT a meeting in the spring of 1927 to stimulate interest in an organized campaign to raise an endowment fund of $1,000,000 for the American Society for the Control of Cancer, a wish was expressed that a number of the addresses which were made by surgeons and research men could be printed in the daily papers. Out of this came the suggestion that the newspapers might print authoritative articles if a series could be produced which would be at once short, interesting, and informative.

To promote this idea a conference was held in New York City between prominent representatives of the publishers of the principal New York papers and of the American Society for the Control of Cancer.

A plan was evolved which called for sixteen articles on as many aspects of the cancer question. They were not signed but issued in the name of the American Society for the Control of Cancer. The articles were all to be carried under a suitable slogan. They were to be numbered and set up in two-column boxes. Each was to conclude with an announcement of the subject of the article which would appear on the following day. All the papers were to begin on a given date and proceed to print the bulletins in orderly sequence. One main idea was to run through the whole series and be stressed by reiteration and variation of expression: many cases of cancer can be cured if people will seek skillful medical attention upon the appearance of the earliest symptoms.

In due course the articles were written. Each was about 250 words in length and in all a tone of hopefulness was employed. The titles follow:

The Prevalence of Cancer
What Is Cancer?
The Danger Signals of Cancer
Is Cancer Hereditary?
Is Cancer Contagious?
The Family Doctor in Cancer
The Prevention of Cancer
The Surgical Treatment of Cancer
Cancer Clinics
Cancer Research
X-Rays and Radium in Cancer
The Warfare Against Cancer
The Curability of Cancer
Cancer Quacks

Following is an example of the bulletins showing the typographic set-up:

THE NEW IDEA OF CANCER
MANY CASES CAN BE CURED IF REPORTED PROMPTLY

Bulletin No. 5—New York Campaign
American Society for the Control of Cancer
25 West 43rd Street, New York City

IS CANCER CONTAGIOUS?

In spite of the fact that physicians and nurses have come into intimate contact with cancer patients for so many years and taken no precautions against infecting themselves, there is no recorded instance of one case of cancer giving rise to another.

This is not to say that microbes are never found in cancers. Discoveries are announced from time to time that bacteria have been identified with cancer, but upon full and impartial investigation it is always found that these parasites have been invaders of the cancer growth—followers rather than producers of the malignant condition.

Cancers often become infected with such microbes as infect wounds of any kind and the unpleasant odors which are sometimes associated with cancer are due to these accidental contaminations. Consequently, the precautions to be taken by those who come in contact with cancer patients are only such as should be followed with infected wounds.

There is no occasion to shun a person who has cancer, so far as danger of contracting the disease is concerned. The victims need all the sympathy and tenderness which can be shown them. Fear that cancer was contagious has sometimes led to unnecessary and uncharitable action toward the sick.

THE TIME TO CURE A CANCER IS WHEN IT IS BEGINNING

If you think you have any of the symptoms described in these articles you should be examined by your doctor or at a hospital at once.

Tomorrow's Article—"The Family Doctor in Cancer"

It was intended to print the bulletins in the spring, but the flight of Lindbergh to Europe took up so much of the space of the newspapers that by the advice of the publishers their appearance was postponed until fall.

It was expected that the publication of the bulletins would send many people to the hospitals. Accordingly, it became necessary to have the hospitals prepare to receive an unusual number of cancer cases and to make special provision for diagnoses.

It was also necessary to stage educational activities of various kinds in order to supply news which would give something for the papers to tie the bulletins up to, as the editors expressed it. They would be liberal in devoting space to cancer, but they must have news items to use in the preparation of their articles.

Inasmuch as the bulletins could not be printed until the autumn, opportunity was afforded to make careful plans for these features.

The postponement brought about a slackening of interest in the project, and it was thought necessary to do something to arouse the attention of the editors and publishers. Accordingly a letter was sent to each publisher in September informing him that during October Dr. George A. Soper, Managing Director of the American Society for the Control of Cancer, would make four addresses before medical societies in different parts of the country on topics which would be suitable for newspaper notice, and that abstracts of these addresses would be released in advance. The titles of these papers were:

Analysis of 1500 Applications for the Saunders Cancer Awards
The New Aspects of the Cancer Problem
What Official Public Health Agencies Should Do About Cancer
The Organized Movement for the Control of Cancer in America

Clippings subsequently received at headquarters showed that these addresses received considerable notice. When added together, the clippings amounted to 867 column inches.

The publishers were consulted on various subjects immediately before the bulletins were to be released, as, for example, the most favorable day for the appearance of the first bulletin, the suitability of the set up, and the order in which the bulletins should appear. It was hoped that in this way their interest would be further enlisted.

To give news support to the bulletins, the New York City Committee of the American Society for the Control of Cancer was requested to put on a period of intensive educational activity consisting of public meetings and other features of the society's cancer weeks. These "weeks" had long been familiar to other parts of the country but were new to New York City. The New York Committee was also asked to get the hospitals ready to handle the many persons who might apply for diagnosis and advice.

A series of articles was written to be released to the newspapers as news stories during the fortnight over which the bulletins would appear. These included the remarkable case of the "Wizard of Hicksville," a man who had courageously had a large part of his stomach removed because of cancer and had just opened a little machine shop in the village where he lived, and a report of advance information on cancer mortality, in which crude, adjusted and refined rates were given.

The New York City Committee brought about a number of public meetings, gave radio talks, and put up many posters and car cards. Reporters were referred by the national office of the society to the city committee for local news. It is in no small measure due to the coöperation afforded by the New York City Committee that so much space was given to the campaign by the metropolitan papers.

When all was ready, the printing of the bulletins was started. It

was expected that there might be a hitch and there were several. At the last moment one of the principal dailies reversed its decision to carry the bulletins. It refused to print any of them. The editors feared that their publication would do more harm than good—that the public would be unduly alarmed. Cancerphobia was as bad as cancer itself.

Here was a difficult situation. The newspaper in point was the most important of all. The refusal had been recommended by the editors and confirmed by the publisher. If this paper would not print the bulletins some or all of the other papers might also refuse to do so. On the other hand, if all the New York papers would go into the scheme, dailies and weeklies outside of New York might be induced to do the same.

An interview was obtained; the importance of the subject was explained; a slight change was proposed in one of the bulletins and reconsideration given to the whole subject. A decision was reached on the part of the publisher not only to print the bulletins but to give a column of news space a day to the subject of cancer as long as the bulletins were being printed. The way in which this final decision was carried out is above all praise. Not only was much space given to the subject in the news columns of this paper, but in addition several excellent editorials were printed. The paper was the *New York Times*.

Disaster threatened in another direction. On the eve of the appearance of the first bulletin, several morning papers raised the objection that they could not reprint bulletins if they were first to appear in the previous evening papers. The evening papers refused to reprint bulletins which were first carried by the morning papers. Each set of newspapers was willing to print the bulletins on the same day that others published them, but no paper would publish anything which had already appeared.

There was only one thing to do. A second set of sixteen bulletins had to be hurriedly prepared. The new set was much like the first one as to topics and their order but had a different slogan and was different in composition. This solved the difficulty.

There were some minor hitches, but by diligent use of the telephone they were overcome. One by one the newspapers got into line after the four principal ones led off. By the end of the first week nine of the city papers were printing the bulletins.

When practically every newspaper in New York City was carrying the bulletins, the idea was taken to the whole country. Copies were sent to the society's state chairmen with a request that they send the bulletins to the newspapers in their territory asking the publishers as a personal favor to publish them. They could point to what was being

done in the City of New York as an argument. Prominent people in various occupations were urged to write to the publishers expressing interest in the matter. Bulletins were also sent direct to newspapers.

The response was gratifying. Newspapers, and sometimes syndicates of newspapers, took up the bulletins and printed them. The movement gained impetus as it proceeded. Dates of release were disregarded to the extent that previous publication in New York City or elsewhere was not considered a bar. More and more papers carried the bulletins each day. Messages arrived at headquarters requesting sets of the bulletins for the use of papers which had inadvertently been omitted from the list of those to whom sets had been sent. Some publishers were offended at having been left out.

It is impossible at this writing to state how many papers printed the bulletins. There are many periodicals which appear once a week which are still joining the movement, and there are a great many little newspapers which will follow the example of the big ones.

Up to March 1, 507 papers were known to have carried or to be carrying the bulletins. These newspapers were distributed in 43 states. All of these papers except the New York City morning papers were carrying the series originally prepared. The aggregate circulation cannot be given, as all returns have not been received at headquarters, but it is known to be well over 10,400,000.

Advertisers and others estimate that the number of readers for each paper varies from 3 to 5. The number who read a given paper depends upon the paper itself, the part of the country in which it is published, whether it is a morning or evening issue, and whether it is delivered at the home or bought at a stand. Allowing 4 readers for each paper, the total number of persons into whose hands these bulletins have been placed has been, roundly, 42,000,000 a day. It is to be remembered that this distribution has taken place not only on one day but on sixteen days.

The value of this publicity cannot be estimated in terms of money, nor in any other way, but a few remarks upon its practical utility may be of interest. During these two weeks probably as many people were instructed in the society's doctrine as had been reached through all channels during any period of five years of the society's career. This instruction had the advantage of being given directly by the national office to the persons for whom it was intended and not through the interpretative voice of a lecturer or other intermediary. The lesson had the value of reiteration. The instruction was exactly in the direction followed by the society from its organization fourteen years ago; namely, the public was told the danger signals of cancer and advised

to go to a physician or hospital for examination upon the first appearance of symptoms or, in fact, a suspicion that cancer might be present.

That many people have been frightened into going to the doctors and hospitals, there is no doubt. Nor is it to be doubted that lives have been saved thereby. The intention has been not to alarm people unduly, but just enough to cause them to have a proper regard for their safety so that they will take the necessary steps for their protection.

Hundreds of people telephoned or called or wrote letters to the office of the American Society for the Control of Cancer asking for further information. Many inquirers wanted to know where to go for examination. A list of 46 hospitals with their addresses and clinic hours had been prepared in advance for such persons and these were given out on request. The hospitals had been requested to be ready for the patients who might come to them. Nobody was sent to any one doctor or hospital. The society did not make any diagnoses or give medical advice suited only to particular cases; much less did it, or does it ever treat cases. Questions on every conceivable aspect of the cancer problem poured in. Provision had been made to answer all inquiries promptly and fully.

There were very few editorials. This feature was not especially promoted in connection with the scheme, this being thought to be unnecessary. It was mistakenly supposed that the editorial page would back up the news pages by recommending the bulletins and their teachings to the sensible attention of the readers.

The hospitals all reported an unusual number of persons applying for examination for cancer. It is believed that not a few persons appeared in an early enough stage in the disease to permit of cure.

On the day when the last bulletin of the series was published in the New York City papers a letter was received by the society from a well known firm of lawyers asking for the full legal name of the American Society for the Control of Cancer, explaining that because of the recent newspaper crusade a client had decided to change his will so as to leave the society a legacy of $50,000.

The preparation of the bulletins, the contacts with the newspapers, and the large amount of correspondence involved were all attended to by the society's regular staff. There was no publicity expert employed and no extra help of any kind engaged upon this work.

The newspaper space known to have been given to the bulletins and their supporting news releases was as follows:

Addresses by Dr. Soper, 867 column inches; daily bulletins, 30,560 column inches; news, 2,425 column inches; totalling in all 33,852 column inches.

Hunting the Vitamin*

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AN OUTSTANDING event of 1926–27 in vitamin research has been the demonstration of complexity in what we have been wont to designate as Vitamin B or, in Funk's nomenclature, the antineuritic vitamin. Smith and Hendrick [1] in this country probably first produced satisfactory evidence of at least the duality of the complex though Emmett and others had some years before noted the possibility. Goldberger and his coworkers [2] have extended these studies of Smith and Hendrick and shown that one of the vitamin B factors is relatively heat stabile, non-antineuritic but definitely antipellagric. This viewpoint has been confirmed by other workers in both this country and in Europe.

From Java also comes this year the announcement of the isolation of the antineuritic factor in crystalline form, reported by Jansen and Donath.[3]

It is then at least evident that what we have called vitamin B consists of two vitamins and that these factors are distributed in food sources of the vitamin in differing proportion. A food in other words may be a good antineuritic and a poor antipellagric or *vice versa*. It is however still far from certain that what we have called vitamin B is merely dual in nature. The data already obtained however strongly emphasizes the need of chemical fractionation of these factors if we are to learn their rôle in diet and health.

During the past seven years R. R. Williams has actively coöperated with my laboratory in the study of vitamin B fractionation. Independently and in collaboration he has accumulated a vast amount of data involving over 1000 pigeon feeding tests and many rat feeding tests. The detail of this experimentation has an important bearing on both the chemistry and physiology of vitamin B factors and will soon appear in print.

Dr. Ralph Kerr, who developed with Williams and myself the isolation of a crystalline bios (bios 223), has during the past year separated from yeast another substance of chemical homogeneity and

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* Read before the Food and Drugs Section of the American Public Health Association at the Fifty-sixth Annual Meeting at Cincinnati, O., October 19, 1927.

while his work has not yet reached the point of complete purification of the substance or of chemical designation comparable to what exists for bios 223, the new product (beta bios) is quite different from the first and apparently of greater growth stimulating power.

In a sabbatical leave tour of France and England during the first of this year, I had the opportunity of personally observing the methods and results of Randoin, Besszonof, Drummond, Chick and Peters and other workers in the field.

In view of the above it has seemed to me not out of place to review some of the data now existent concerning the vitamin B complex and especially the work of my own laboratory as it relates to work of other laboratories now studying this problem from the chemical angle.

At the Lister Institute in London, in May, 1927, Dr. Harriet Chick, in collaboration with Miss Roscoe [1] had obtained data apparently fully confirming Goldberger's contention that the yeast vitamin B is composed of an antineuritic factor and an antipellagric factor. Her work makes clear that both of these factors are necessary for continuous growth in rats and that the antipellagric factor is more heat stabile than is the factor which prevents or cures polyneuritis, but it is both misleading and contrary to fact to designate the antipellagric as the growth factor in contradistinction to the antineuritic factor, for so far as her experiments go they show that the rat will decline and die unless both factors are present in suitable proportions. Her studies also show that wheat embryo is much richer in the antineuritic factor than in the antipellagric one, thus putting wheat in the same category as corn in this respect.

It may be recalled here that Goldberger's success in demonstrating the P-P factor (his designation for the antipellagric) lay in his utilization of an alcoholic extract of cornmeal which, like Chick's alcohol extract of wheat embryo, proved relatively poor in P-P but rich in antineuritic. Chick's experiments are however in a way still more conclusive owing to her possessing a source of antineuritic *practically devoid of P-P*. This she owed to the success of Kinnersley and Peters of the Oxford University Department of Biochemistry. In this country we have known for some time that by autoclaving yeast at 120° C. we can destroy its heat labile polyneuritis preventing power without loss of its more heat stabile P-P factor. We have however lacked a preparation that was rich in antineuritic but entirely devoid of P-P. Kinnersley and Peters's "torulin" yeast fraction therefore particularly interested me. Their preliminary method has already appeared in print [2] but Peters has since greatly refined this method and has kindly provided me with details of his present method including his manner of con-

trolling the selective adsorptive power of norite for the antineuritic factor. His present method is briefly summarized below:

SUMMARY OF PETERS AND KINNERSLEY'S PRESENT METHOD OF OBTAINING "TORULIN"

1. Extract partly autolyzed baker's yeast with boiling water. Filter.
2. Treat filtrates with 25 per cent neutral lead acetate. Filter.
3. Treat with baryta to remove gum. Filter and make acid to Congo red with sulfuric.
4. Remove baryta with sulfuric ac id. Filter. Make solution pH 2.5.
5. Add mercuric sulfate in sulfuric acid. Filter.
6. Make filtrate pH 7. Add dry purified norite. Filter after 10 minutes' stirring.
7. Re-treat filtrates with additional norite to complete removal of torulin at pH 7.
8. Extract torulin from norite with N/10 HC1 on hot water bath.
9. Purify torulin by alcoholic fractionation method after the manner of Osborne-Wakemann.

My interest in this "torulin" fraction and Chick's use of it was further stimulated on my return from Europe by finding that my colleague Williams had in my absence also succeeded in accomplishing a fractionation of the more heat labile part of vitamin B by refinements in the control of the adsorbing power of fuller's earth. Almost coincident with these developments came the announcement by Jansen and Donath of the isolation of a crystalline antineuritic of high potency.

Are Peters's "torulin," Williams's specifically activated fuller's earths, and Jansen and Donath's crystalline antineuritic, identical in character? Unfortunately data are not yet available to settle this point. Peters tells me that he has been unable to make Jansen and Donath's method produce a product such as they describe when he has applied it to his norite fraction. Since however, the method of Jansen and Donath was applied to rice polish extract, Peters's failure may be due to interference with the method by substances present in yeast and absent in rice polish. Peters has also confined his tests for potency to measurements of dosage necessary to cure pigeons sick of polyneuritis in a given time period. He has, so far as I can learn,* reported only two observations on the weight restoration or weight-maintaining power of his torulin fraction and in these two cases the birds were cured of polyneuritic symptoms but continued to decline in weight. Jansen and Donath report only a few observations on pigeon weights but imply that their fraction not only cured polyneuritis but also prevented weight loss.

The properties of Williams's preparations are presented in the accompanying Chart I, and will be described much more in detail in his own report of these findings. His preparations used in preventive

TO SHOW THE SPECIFICITY OF WILLIAMS'S PREPARATIONS WHEN USED IN TESTS WITH PIGEONS

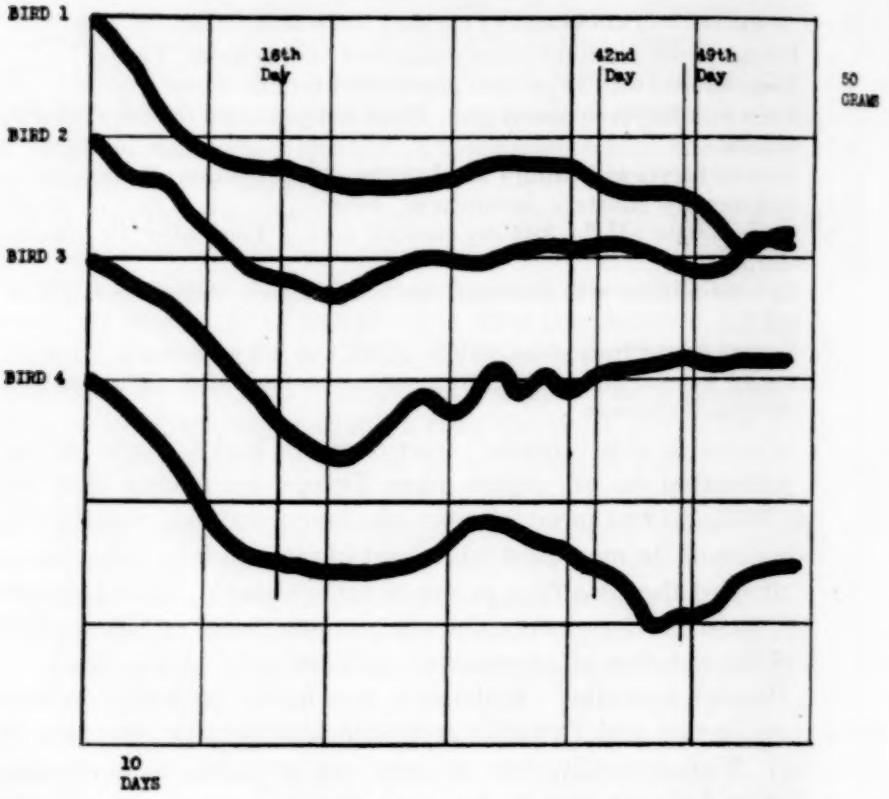


CHART I—*Four adult pigeons were fed on polished rice alone until the 16th day. On the 16th day each bird received 5 mg. of Williams's preparation Y1 and this dosage was continued daily up to the 42nd day. The birds ceased to decline in weight and showed no polyneuritis but failed to return to normal weight. On the 42nd day the dose of Y1 was quadrupled (20 mg. daily) and on the 49th day quadrupled again (80 mg. daily). These increases failed to appreciably restore weight. Addition of autoclaved yeast on the 58th day also failed to restore weight but the birds promptly recovered when fed whole grain or whole dried yeast. Pigeons therefore require what is in Y1 to protect from polyneuritis and to maintain weight but Y1 lacks a factor present in whole yeast and in autoclaved yeast which the pigeon needs. Is this vitamin B3? The heavy line in the chart is the growth curve.*

tests uniformly exert some power toward the restoration of weight or at least to maintaining of weight at a lower level than normal, but in no case or dosage yet tested are they capable of bringing the birds back to the weight they had before the polished rice feeding began. With rats Williams's preparation produces, when used as the sole source of vitamin B in an otherwise adequate diet, a slight amount of growth. Autoclaved yeast alone also stimulates growth at first but a growth that is soon arrested and followed by death from polyneuritis. By combining the Williams preparation with an adequate supply of autoclaved yeast

normal rat growth is obtained. It prevents polyneuritis in both rats and pigeons in doses as low as 5 mg. of activated earth per day.

Chick's work shows that Peters's extract resembles Williams's fraction when supplied to rats, i.e., it is lacking in the heat stabile factor of autoclaved yeast. Seidell's experiments and ours make it doubtful whether the P-P factor of autoclaved yeast is required by pigeons. To date it has been found impossible to restore birds to normal weight by adding autoclaved yeast to the Williams factor in pigeon feeding. Hence in the lack of further data from Peters we know only that his torulin fraction behaves like Williams's fraction toward rats but not that it is identical in bird affecting values. In brief, it is still a question whether the heat labile factors required by pigeons are one or two; whether the vitamin B complex of yeast is composed of two heat labile and one relatively heat stabile* factor, one of each or several of each.

Significant then as are these fractionations in the matter of solving the problem of what vitamin B is, that problem still exists. There is neither time nor place here for further discussion of these points. It will however be immediately evident to the public health worker or dietary adviser that we must have a complete revision of our tests and data on the distribution of vitamin B in foodstuffs and that the preparations described above are going to be valuable tools in this work. Previous tests have taught us the amounts of food considered as source of vitamin B necessary to normal or subnormal rat growth or to pigeon health, but not their antineuritic versus their antipellagric content. I wish then to consider next some of our preliminary work in approaching this problem of differentiating the vitamin fractions.

A year ago I reported to this Association a series of experiments devised to show the vitamin value of the banana.[6] In that report I showed that by the Sherman rat test 8–10 g. of ripe banana per day per rat was necessary to prevent polyneuritis and secure a growth of 20 g. gain in 60 days using 30-day old white rats as test animals. How much antineuritic and how much antipellagric vitamin is present in this quantity of banana? Obviously the gross test of last year shows that both factors are present in banana but fails to differentiate them. With the aid of Williams's preparations and autoclaved yeast we now have tools that enable us to do this. Chart II summarizes the feeding tests to date. In brief, if the antineuritic factor is supplied by an adequate source such as Williams's preparation which is at the same time free of

* It will be noted that we are careful to describe the P-P factor as relatively heat stabile. Ordinary autoclaving of yeast adequate to destruction of its polyneuritis preventing power leaves the yeast antipellagric. An accident in allowing the autoclaving to proceed for a longer time demonstrated that under these conditions the antipellagric power will also disappear. P-P is then capable of heat destruction but far more resistant to it than is the antineuritic fraction.

TO SHOW THE SPECIFICITY OF WILLIAMS'S PREPARATIONS WHEN USED IN TESTS WITH WHITE RATS

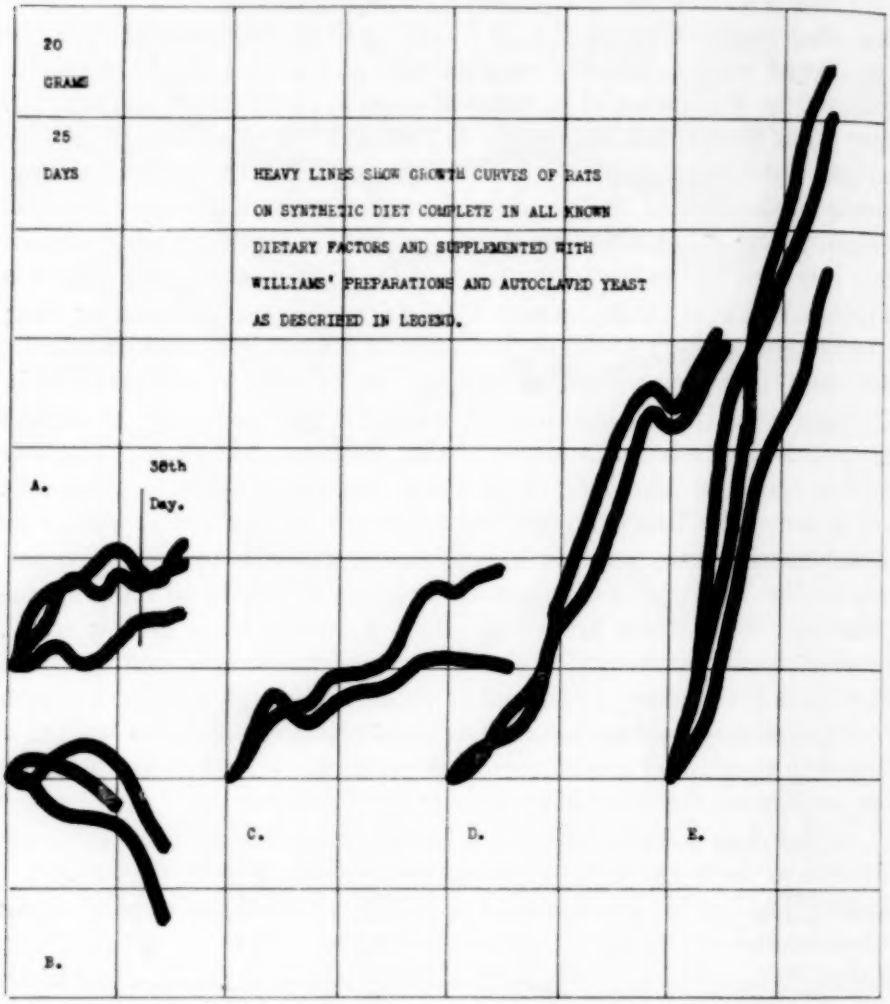


CHART II—*A. Three rats 30 days of age were fed on a vitamin B-free basal diet plus 10 mg. Williams's preparation Y1 daily. On the 30th day the Y1 was quadrupled (40 mg.). A slight temporary gain was not maintained but no symptoms of polyneuritis appeared. Y1 then protects rats from polyneuritis, permits some weight gain but is not adequate for normal growth. B, C, D, E. These four groups of 30-day old rats were fed as follows: Group B received the same basal diet as Group A, plus 1 g. of autoclaved yeast daily. They received no Williams's preparation. They declined in weight and died of acute polyneuritis in 25–40 days. Groups C, D, and E received the same basal diet and autoclaved yeast dosage as Group B. In addition Group C received 3 mg. Williams's Y1 daily, Group D received 6 mg. Y1 daily and Group E 10 mg. Y1 daily. When the rat receives his antipellagric factor in the form of autoclaved yeast and his antineuritic factor in the form of Williams's preparation normal growth results. He apparently needs only vitamins B1 and B2 and does not require the factor B3 essential to the pigeon.*

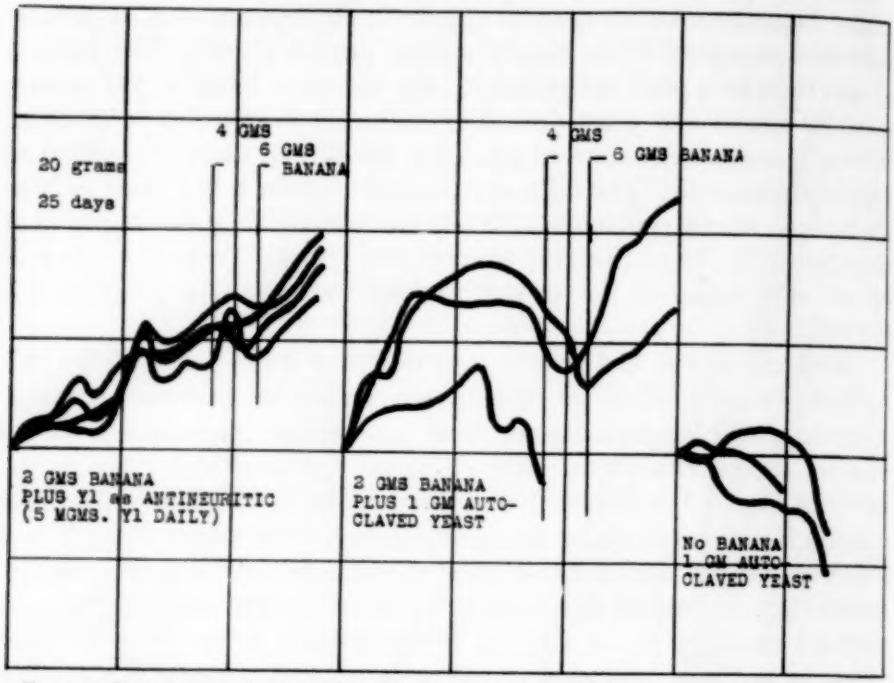
P-P, even 2 g. of banana per rat per day supplies enough of the latter factor to produce better than 20 g. gain in 60 days and 6 g. of banana furnishes enough P-P for nearly normal growth curves. The banana should then be a good antipellagric. On the other hand, if P-P is supplied by autoclaved yeast devoid of antineuritic, rats fail to show an upward growth trend until at least 6 g. per day of banana is added to supply antineuritic. The differentiation of vitamin B in a fruit such as the banana then seems to indicate a better content of antipellagric than of antineuritic. Does this hold true of other fruits? Tests of course will be our only means to the answer, but the tools are now available for the tests.

We have as yet had time to test only one other foodstuff by this method. In our study of the distribution of vitamins in canned spinach, Kohman and I [7] reported some time ago certain observations on its vitamin B content. At the time we noted a marked difference in the behavior of dried raw spinach and dried cooked spinach as a source of vitamin B with an apparent lessened potency of the latter. We did find however that the canned was as good as the home cooked in this respect. In carrying our control experiments we made the discovery that if a rat received *one-third* of his vitamin B requirement in the form of dried yeast, he not only was able to use dried cooked spinach to meet the other two-thirds requirement, but would readily eat enough to bring about this result. We felt at the time that the yeast was a means of stimulating the appetite of the rat for spinach rather than that the spinach was lacking in B. We did however record at the time one experiment of Williams with our dried cooked spinach in which he was unable to prevent polyneuritis in pigeons with a daily dosage of 4.4 g.

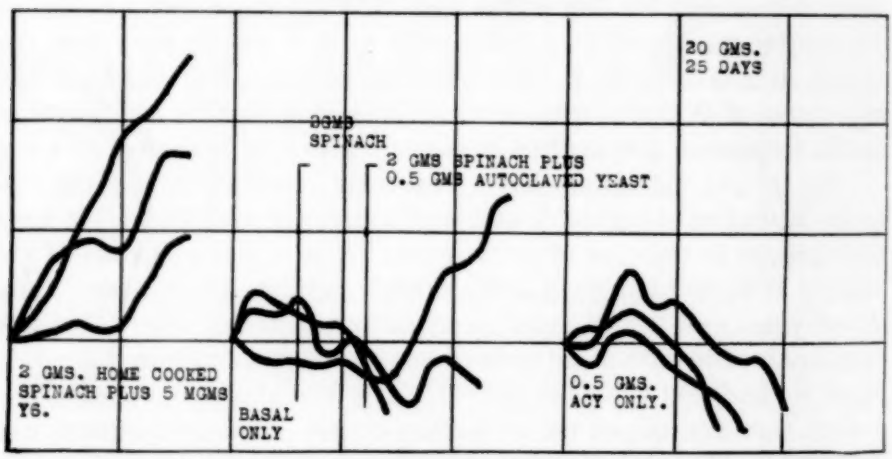
Pigeon and rat testers have frequently reported similar discrepancies in studies of vegetable and fruit sources of vitamin B. We have therefore, as in the case of the banana, begun a series of tests of the vitamin B value of spinach using similar methods and utilizing autoclaved yeast and the Williams preparations in tests. Chart II shows data obtained to date using undried home cooked spinach in this series. Again we find that while the spinach is not devoid of either factor, it is a much better source of the antipellagric than of the antineuritic, and that cooking tends to reduce its antineuritic value.

The purpose of this paper is primarily to show the importance of chemical fractionation methods in progress toward the solution of problems of vitamin behavior. Perhaps these two illustrations have adequately indicated how hunting the vitamin B fractions has been a step toward better dietetic advice and a means to further progress in that line. Since, however, we are not at all sure as yet as to how many

APPLICATION OF WILLIAMS'S PREPARATIONS TO VITAMIN B TESTS ON FOODSTUFFS



TESTS ON RIPE BANANA SHOWING IT TO BE A BETTER ANTIPELLAGRIC THAN AN ANTINEURITIC THOUGH CONTAINING BOTH FACTORS



TESTS ON UNDRIED HOME COOKED SPINACH SHOWING IT TO BE A MUCH BETTER ANTIPELLAGRIC THAN ANTINEURITIC

CHART III—*Since the Williams's preparation Y1 supplies the rat with antineuritic factor only and the autoclaved yeast with antipellagric factor only it is possible with these two substances to determine quantitatively the amount of each kind of factor present in a food stuff. Chart III shows how these factors were used to show that both banana and spinach are richer in antipellagric than antineuritic factor. By giving the rat in combination with an otherwise adequate basal diet enough of either factor to meet his need for that, the value of a foodstuff as supply of the missing factor is measurable.*

vitamins B exist, it is perhaps well to emphasize both their value and limitations. The latter consideration gives point to the urge to greater activity in the field of chemical isolation and before closing this paper I wish to report briefly certain other chemical phases of our vitamin hunt attained during the past year.

Sir James Irvine recently put his reasons for interest in the study of carbohydrates as follows:

> My reflections have convinced me that first importance must be attached to the fact that carbohydrates are essentially the products of natural, as opposed to artificial, synthesis. Within us and around us, through the agency of life, these compounds are being built up and broken down, formed and transformed, finally to be consumed in the fire of metabolism. To study the sugars is, in brief, to study the great molecular channel through which solar energy flows to us. No wonder that the thought of such work makes a powerful appeal to the student of vitalism who is naturally somewhat inclined to turn aside from that aspect of chemistry which deals with purely artificial reactions.

The study of yeast behavior and the factors that control it has for a somewhat similar reason to that advanced by Irvine, always interested the biochemist. The postulation of bioses that function in stimulating yeast growth, much as vitamins stimulate the growth of higher organisms, has held out the hope that by isolation and observation of the behavior of these bioses we might obtain more easily the clue to the method of activity of the vitamins even though, as now seems evident, such bioses do not appear to be of importance in animal nutrition.

Three years ago Kerr, Williams and I[9] succeeded in isolating from yeast a crystalline amino acid that seemed to function as a bios. A later discovery was the fact[9] that the activity of this compound could be completely blocked by substituting for one of its NH_2 hydrogens an additional compound (benzene sulfon chloride) and that this inactive compound became active again when the substituted product was removed and the hydrogen restored by hydrolysis. Such studies seemed to be bringing our hunt closer to localizing the seat of activity of these compounds. However, a series of events has postponed for the time our pursuit of the study of bios 223.

By following our method exactly Roger Williams[10] was able to separate from yeast our crystalline bios or at least a product with the same physical and chemical constants. When he tested the activity of this product on the yeast at his command he reported two results of significance, viz., that the isolated amino acid is not so active as the yeast autolysate from which it is separated and that its stimulative power is confined to certain strains of yeast. His findings are given in part in Table I.

TABLE I

ROGER WILLIAMS'S RESULTS WITH BIOS 223 TESTS

I. 24 hours incubation at 31° C.

Test	Yeast crop in mg.
Control (no bios)	1.0
10 mg. yeast autol	2.1
0.5 mg. bios	1.4
0.2 mg. bios	1.6
0.06 mg. bios	1.3

II. 48 hours incubation at 31° C.

Test	Yeast crop in mg.
Control (no bios)	1.7
1 mg. bios	2.7
1 mg. bios	2.9
10 mg. cane molasses	3.3
20 mg. cane molasses	4.1

Meanwhile, unaware of Williams's results at the time, our own tests had revealed similar peculiarities as well as other data of interest in the matter of bios behavior. Some of these data are given in Table II.

The results showed conclusively that our bios 223 isolated from yeast autolysate either was not the sole bios or lacked some factor left in the yeast to attain maximum stimulation. The results also strongly suggest that these bioses are not growth catalysts but true yeast foods, the stimulation being directly proportional to the amount of bios present. In view of these results it seemed best to turn for the moment from the study of structure of bios 223 and hunt for another bios in the yeast autolysate. That search has been successful and will shortly be reported in detail by Dr. Kerr. The following brief summary will show how the new product (beta bios) was obtained and in Table III are given a series of comparisons between its behavior as a growth stimulus and bios 223. Chemical analysis indicates homogeneity in fractions obtained by duplication of the isolation method and certain indications as to its structural composition are now available, but it is unlike bios 223 in being very hygroscopic, and we have not yet suc-

TABLE II

SOME OF KERR AND EDDY'S TESTS WITH BIOS 223

Seedings	Series I. Using 0.1 c.c. yeast autolysate per 10 c.c. Clark's medium				Series II. Using 0.1 mg. bios 223 per c.c. of Clark's medium			
	A		B		C		D	
	Controls	Yeast tube	Controls	Yeast tube	Controls	Old Bios	Controls	Fresh made bios
c.c.	c.c.	c.c.	c.c.	c.c.	c.c.	c.c.	c.c.	c.c.
0.1	.001	.068	.002	.075	.001	.003	.002	.019
0.2	.004	.067	.004	.081	.004	.006	.006	.022
0.3	.005	.062	.007	.076	.007	.008	.009	.018
0.4	.007	.061	.009	.060	.008	.009	.010	.019
0.5	.008	.065	.009	.073	.009	.010	.010	.018
0.6	.009	.068	.010	.076	.010	.010	.011	.020
0.7	.010	.063	.011	.077	.010	.014	.011	.019
0.8	.011	.064	.012	.068	.011	.013	.011	.017
0.9	.011	.065	.012	.076	.012	.013	.013	.012
1.0	.011	.068	.012	.079	.011	.014	.016	.020

Incubation 48 hours at 31° C. One c.c. seeding means 250,000 cells per c.c.
Results in volumes c.c. per Hopkins tubes after Funk-Dubin method.

ceeded in getting it in crystalline form. Like bios 223, it contains both amino and carboxyl groups.

TABLE III

TABLE SHOWING COMPARATIVE ACTIVITIES OF ALPHA AND BETA BIOSES

Dosage: 0.001 mg. Bioses per c.c. of Roger Williams's culture medium.
Seeding in each case 250000 cells per 10 c.c. medium.
Growth reported in volumes of centrifuged cells after Funk-Dubin method.
Incubation at 31° C. in still tubes.

A. Tests applied to Gebrüde Mayer Yeast (supplied by Fleischmann Co.)

Results at end of	24 hrs.	48 hrs.	72 hrs.
	c.c.	c.c.	c.c.
Control (no bios)	.001	.002	.017
Control (no bios)	.002	.002	.012
Alpha-Bios	.003	.011	.024
Alpha-Bios	.002	.010	.020
Beta-Bios	.008	.013	.031
Beta-Bios	.009	.012	.031

B. Tests applied to Ruppert Brewing yeast (supplied by Ruppert Brewing Co.)

Results at end of	24 hrs.	48 hrs.	72 hrs.
	c.c.	c.c.	c.c.
Control (no bios)	.001	.002	.001
Control (no bios)	.001	.002	.002
Alpha-Bios	.003	.014	.013
Alpha-Bios	.002	.015	.012
Beta-Bios	.002	.017	.019
Beta-Bios	.004	.019	.020

C. Tests applied to Untergarige Hefe K (supplied by Fleischmann Co.)

Results at end of	24 hrs.	48 hrs.	72 hrs.
	c.c.	c.c.	c.c.
Control (no bios)	.001	.002	.002
Control (no bios)	.002	.003	.002
Alpha-Bios	.003	.010	.011
Alpha-Bios	.004	.012	.010
Beta-Bios	.009	.015	.013
Beta-Bios	.004	.018	.016

BRIEF RECAPITULATION OF KERR'S PRESENT METHOD OF SEPARATING ALPHA AND BETA BIOS FROM YEAST AUTOLYSATE

I. Preparation of extract which contains both bioses:
   a. Autolyse brewer's yeast 3 days at room temperature. Filter.
   b. Dilute with equal volume of water and refilter.
   c. Heat filtrate to boiling and discard unfilterable matter.
   d. Stir with 50 g. fuller's earth per l. (750 g. per extract 100 lbs. moist yeast.) This process removes the vitamin B and takes out little bios.
   e. Make filtrate pH 4.7 and stir with iron sol. Discard ppt.
   f. Make filtrate pH 5.3 and use double amount of iron sol. used above. At this pH the iron sol. in suitable quantity removes both bioses. Adsorption complete if stirred and then allowed to stand 30 minutes before filtering. Activated iron sol. further purified by mixing with water, stirring and again filtering.
   g. Obtain bioses from iron sol. by first drying the latter. While still pasty add as little as possible of 30 per cent sulfuric acid. When solution is

nearly complete, dilute with water until sulfuric acid content is not over 5 per cent. Remove iron and sulfate ion with baryta at pH 7. Filter only at this pH. Beta bios is lost if filtered at alkaline reaction.

II. Separation of the bioses from the above extract:
   a. Remove baryta with sulfuric acid and concentrate at 50° to sirupy consistency. Add 95 per cent alcohol and satt. baryta (hot) until alcohol content is 70 per cent and no more baryta gum flocks out. Let ppt. settle. Decant and filter the supernatant fluid. The precipitate now contains the beta bios. The filtrate contains the alpha bios (bios 223).

III. Purification of beta bios:
   a. Stir ppt. with water and filter. Repeat until water filtrate is colorless.
   b. Neutralize filtrates as rapidly as possible with sulfuric and combine.
   c. Make combined filtrates pH 5–6 and filter.
   d. Add hot water solution of silver sulfate and reject ppt.
   e. Add acid mercuric sulfate to filtrate and reject ppt.
   f. Evaporate extract from 100 lbs. yeast to 100 c.c. Add sulfuric to 5 per cent by wt. Precipitate with 20 per cent phosphotungstic acid in 5 per cent sulfuric. Let stand over night and filter. Save ppt. Discard filtrate.
   g. Decompose the phosphotungstic ppt. as follows:
   Dissolve ppt. in as little 80 per cent acetone as possible and add cold 1/3 satt. baryta. When the mixture is free of soluble phosphotungstate evaporate with constant stirring and air blast until free of acetone. Filter and discard ppt. Remove barium quantitatively with sulfuric and concentrate filtrate to sirup by fanning at 30° C. (Compound is very thermo-labile.) Do not attempt to carry this to dryness. Dry the product by stirring in large quantities of acetone until the residue becomes a dry granular yellow powder. Filter the acetone suspension by suction until the last free acetone disappears from the top of the ppt. While the residue is still moist with acetone transfer to a cool dry container and place immediately in vacuum desiccator over fresh sulfuric acid. Remove last traces of acetone suction. Light yellow semi-crystalline powder is beta-bios.

Are there other bioses in yeast? Are these two products similar in function? Are they related in any way in origin? Do they exist in yeast as separate entities or are they parts of a larger molecule split by our fractionation? These and other questions at once arise but the success of the hunt in bringing to light another homogeneous complex of growth stimulating activity has at least multiplied our tools for the study of the chemistry of growth stimulation and perhaps justified delay in the solution of structural problems raised by bios 223 isolation.

I believe that the explanation of the rôle of factors such as vitamins and bioses in nutrition can come only with chemical isolation and perhaps synthesis of the active substances. I feel that the past year has provided distinct encouragement that such isolation is possible, and that we merely await with further patience the refinement of existing procedures to attain the goal. I might have cited equally notable advances in this direction in the study of other vitamins by other

workers. However, in adhering to the rule of the Association that the paper shall deal with original work I have confined my review as much as possible to the developments in my own laboratory with such reference to other work in the field as relates to it.

The significance of this and other work on vitamin structure and behavior perhaps needs no further words of interpretation to workers in public health fields. The true student of the science of nutrition, however, often appears to a disadvantage in the rôle of adviser on dietetic problems due to his consciousness of unsolved problems, an inhibition entirely lacking in the dogmatic food faddist. Perhaps then it is permissible to emphasize a bit the need of such inhibitions and the problems that still exist unsolved to encourage the public health worker to continue to be cautious rather than dogmatic in his advice.

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Paris Has New Type of Open Air School.

A NEW type of open-air school, sponsored by Prof. Alfred Binet, co-inventor of the Binet-Simon Intelligence test, has been opened recently in a thickly populated district of Paris.

The purpose of this school is to provide instruction for each child not according to his age, but according to his physical and mental abilities. Each pupil is examined by a physician at the time of admission; is given a Binet-Simon test; and is then assigned to a grade in accordance with the findings of the examination. The examination is repeated every 3 months, and the child is promoted to a higher grade or left in the same, according to the findings.—*La Pediatria,* Naples, Oct. 15, 1927. p. xxvii.

The School Ventilation Study in Syracuse, N. Y.*

School Year, 1926-1927

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DURING the school year 1926-27, the Commission conducted a preliminary study into the effect of ventilation on the health of school children in three modern, steam heated, mechanically ventilated schools and in three old, furnace heated, naturally ventilated schools. The incidence and duration of diseases of the upper respiratory tracts of the pupils were taken as the criterion for judging the relative healthfulness of the two types of ventilation under consideration, but in actual practice in this preliminary study, in which the determination of the presence or absence of these diseases rested largely with the parents and teachers, the medical terminology was discarded and the diagnoses were interpreted under the general headings: colds or sore throats.

The crude results of this study support, in general, the findings of the Commission's studies in certain schools of New York City some ten years earlier.[1] The mechanically ventilated schools showed an excess of 47 per cent in total absenteeism; of 67 per cent in absenteeism due to respiratory illness; of 80 per cent in respiratory illness among the pupils present, and of 77 per cent in the total of respiratory illness among pupils present and absent.

This apparently decisive confirmation of the Commission's earlier studies might be accepted as the final and definite answer to the question of the relative superiority of natural over mechanical systems of ventilation. But, just as it has been so frequently shown that *crude* death rates are not reliable indices of the relative healthfulness of two communities, so it may be shown that in these schools the *crude* rates of total absenteeism and that part of it due to respiratory illness are not to be relied upon as an infallible guide in determining which of two types of ventilation is the more healthful—and the reasons in the two cases are much the same!

* Abstract of report, delivered before the American Society of Heating and Ventilating Engineers at their Annual Meeting, January 24, 1928. The complete report under the title of "Effect of Ventilation on the Health of School Children," will be published in the *Journal of the American Society of Heating and Ventilating Engineers*, April, 1928.

Communities differ in the age, sex and racial compositions of their populations, and school populations differ in the same manner. It is only after mortality rates are corrected for residence and the differences of age and sex are compensated by "standardization" or adjustment to a standard population, that one may safely take even the first steps in deciding which of two communities is the more healthful. Furthermore, judgment should not rest on the experience of a single year. The same precautions hold in the judgment of the healthfulness of methods of school ventilation.

Certain characteristics of the populations of the six schools included in this preliminary study are shown in Table I.

TABLE I

CHARACTERISTICS OF SCHOOL POPULATIONS

School	Grades	No. of Pupils	Percentage of Pupils of American Parentage	Average Age of Pupils (Years)	Percentage Males
		Mechanically Ventilated Schools			
Salem Hyde	2-5	146	91.8	8.3	56.2
Seymour	2-8	707	62.0	11.1	50.6
Danforth	2-6	379	85.5	9.5	47.8
Totals		1232	72.7	10.3	50.4
		Naturally Ventilated Schools			
Montgomery	2-6	325	65.0	9.9	50.5
Merrick	2-6	232	91.4	8.9	51.3
Townsend	2-3	237	4.6	8.2	53.2
Totals		794	54.6	9.1	51.5

The mean temperature of the air in the classrooms and the attendance and health records of the different schools are given in Table II.

TABLE II

MEAN TEMPERATURES, ATTENDANCE AND HEALTH RECORDS

School	Mean Temp. (°F)	Total* Absences	Absences Due to Resp. Ill.*	Resp. Dis. Among Pupils Present*	Total Respiratory Disease*
	Mechanically Ventilated Schools				
Salem Hyde	70.2	6.4	3.4	20.4	23.8
Seymour	70.1	7.7	2.6	13.6	16.2
Danforth	69.5	6.7	3.5	6.9	10.4
Totals	70.0	7.2	3.0	12.6	15.6
	Naturally Ventilated Schools				
Montgomery	71.7	6.5	2.0	9.1	11.1
Merrick	68.3	4.1	2.4	6.0	8.4
Townsend	65.8	3.7	1.0	5.4	6.4
Totals	68.5	4.9	1.8	7.0	8.8

* Per cent of Total Pupil Sessions.

The superiority of natural ventilation *appears* clearly established by the average of the gross attendance and health records presented in Table II. All the naturally ventilated schools show lower rates of respiratory illness absenteeism than any of the mechanically ventilated schools, but with groups of various racial compositions, the attendance

figures must be studied in this connection to see if these differences have any bearing on the results.

It is interesting, if not significant, to note that the naturally ventilated Townsend School, attended by pupils of whom 95 per cent are of Italian origin, had the lowest average temperature and at the same time the lowest rates of total absences, respiratory illness absences, and respiratory illness among the pupils present. The naturally ventilated Merrick School, with a population containing but 10 per cent of pupils of foreign parentage, and having the next lowest average temperature of the six schools, ranked second in total absenteeism, in respiratory illness among the pupils present and in total respiratory illness, and third in absenteeism due to respiratory illness. On the other hand, the naturally ventilated Montgomery School, which had the highest average temperature of the six schools, attended by pupils of whom 35 per cent were of foreign parentage, while ranking fourth in total absenteeism, in total respiratory illness and in respiratory illness among the pupils present, held second place in absenteeism due to respiratory illness.

The first step in the analysis of these data is the examination of the race stock of the pupils and of the ratios of respiratory illness absenteeism to total absenteeism and to total respiratory illness.

TABLE III

PERCENTAGE OF PUPILS OF AMERICAN PARENTAGE
PROPORTION OF ABSENTEEISM DUE TO RESPIRATORY ILLNESS
AND
PROPORTION OF CASES OF RESPIRATORY ILLNESS
ATTENDING SCHOOL

School	Percent Pupils of American Parentage	Ratio R. I. Absenteeism to Total Absenteeism	Ratio R. I. Among Pupils Present to Total Resp. Illness
	Mechanically Ventilated Schools		
Salem Hyde	91.8	53%	85.5%
Seymour	62.0	33%	84.0%
Danforth	85.5	53%	66.4%
Totals	72.7	41%	80.0%
	Naturally Ventilated Schools		
Montgomery	65.0	31%	82.0%
Merrick	91.4	59%	71.5%
Townsend	4.6	28%	84.4%
Totals	54.6	37%	79.6%

Again, as far as averages are concerned, there is relatively little difference between the two groups, but examination of the second column of Table III for the individual schools shows that regardless of the type of ventilation, in those with the higher percentage of pupils of American parents, respiratory illness causes twice the absenteeism it does in the other schools. Likewise, the third column of figures supports the fact

that an American child with respiratory illness is much more likely to be kept at home than is the child of foreign parentage. A study of respiratory illness absenteeism by grades (not reported here) brings out the fact that the higher the grade the lower the incidence of respiratory illness.

Unless these factors of race and age can be compensated, one is not warranted in drawing the conclusion from the rates of respiratory illness absenteeism that one type of ventilation is more favorable than the other.

Such an adjustment may be effected with the elimination of the Salem Hyde and the Townsend Schools. These schools are widely separated and not in the same parts of the city as the other four schools. Further, the Townsend school is attended almost exclusively by pupils of Italian origin. Of the remaining 4 schools, Seymour (mechanical) and Montgomery (natural) are in the same neighborhood, and are attended by approximately the same type of pupil. The same observations hold for Danforth (mechanical) and Merrick (natural).

Restricting consideration to grades 2 to 6 in these 4 schools, we have groups of the following characteristics:

TABLE IV

CHARACTERISTICS OF PUPILS IN TWO MECHANICALLY VENTILATED AND TWO NATURALLY VENTILATED SCHOOLS IN WHICH EFFECTS OF RACE AND AGE ARE APPROXIMATELY BALANCED

	Mechanically Ventilated Schools	Naturally Ventilated Schools
Percentage Pupils of American Parentage	71.0%	76.0%
Average age of pupils (years)	10.0	9.5

In these groups, both the average age and the racial composition of the population are practically identical—very slightly in favor of the mechanically ventilated schools. Despite this fact, the naturally ventilated schools show the better attendance and health records as given in Table V.

TABLE V

CONSOLIDATED ATTENDANCE AND HEALTH RECORDS IN TWO MECHANICALLY VENTILATED AND TWO NATURALLY VENTILATED SCHOOLS IN WHICH THE EFFECTS OF RACE AND AGE ARE APPROXIMATELY BALANCED

	Mechanically Ventilated Schools*	Naturally Ventilated Schools*	Excesses in Mechanically Ventilated Schools
Total Absences	7.0	5.4	29%
Absences due to Respiratory Illness	2.9	2.2	32%
Respiratory Illness Among Pupils Present	8.8	7.8	13%
All Respiratory Illness	11.7	10.0	17%

* Per cent of total Pupil Sessions.

Even with this somewhat refined treatment of these data, the conclusion that natural ventilation of schools is the more healthful is hard-

ly warranted from this study. This warning is of particular importance in this instance in view of the fact that the experience covers but a single year, and, furthermore, the diagnoses of respiratory illness—the fundamental observations on which this preliminary study was based—originated on the one hand in the excuses for absence sent in by the parents of absentees, and, on the other, with the teacher in so far as the pupils in attendance are concerned. ***No amount of mathematical refinement can overcome the handicaps of error in original observations.***

The study is being continued during the present school year, with school nurses, who have received special training, responsible for the determination of the existence of respiratory disease (where diagnosis has not been made by a physician), both among the absentees and the pupils in attendance. Although there is nothing to indicate that the methods of the preliminary study tended to favor one type of ventilation over another, restriction of the diagnosis to persons especially trained suggests itself as a more trustworthy foundation on which to base definite conclusions.

REFERENCE

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Health Education in India

IN the United Provinces the Red Cross coöperates with the Hygiene Publicity Bureau which carries on extensive health work. Workers are sent out to fairs, religious and social gatherings to give health talks and distribute literature. At a recent exhibition organized by the Public Health Department in Lucknow, the Red Cross and the Hygiene Publicity Bureau had a joint exhibit of models, posters, charts and lantern slides, the latter being arranged in upright frames illuminated from behind by electric bulbs. The other exhibits included smallpox, cholera, plague, malaria and tuberculosis sections, models of sanitary and insanitary villages, houses and wells, a model travelling dispensary such as is in actual use in rural districts and a sanitary engineering stand. Medical men were in charge of the different sections in order to explain the exhibits and give population health talks. In the evenings the film "Why Die of Cholera?" was shown to large audiences.

Special arrangements were made for school children to visit the Exhibition and questions on the subjects treated were afterwards set in school examinations. The Public Health Department also gave a prize for the best descriptive essay on the Exhibition.—*League of Red Cross Societies Bulletin*. Dec. 1, 1927.

The Vitamins as Factors in Health and in Food Values.*

YOUR committee is not unmindful of the fact that it reported under a title of similar purport only a few years ago;[1] but so rapid have been the advances of recent years—not so much in the pure chemistry of the vitamins as in our knowledge of their nutritional relationships, their significance to health, and their distribution among food materials—that a new attempt to summarize the outstanding characteristics of the vitamins as factors in health and in food values seems desirable from the point of view of 1927.

Our report of 5 years ago dealt with vitamins A, B, and C. The present report, or series of reports, must deal not only with the changes which the intervening years have wrought in our ideas regarding these substances, but with some other substances as well. The fat-soluble antirachitic substance is now generally grouped with the vitamins and is commonly designated as vitamin D. Another fat-soluble substance which, in addition to substances previously known, has recently been discovered as essential to reproduction is known as vitamin E. And still more recently there has been a rapid accumulation of evidence, which now in total seems quite conclusive, that what has hitherto been known as vitamin B involves at least two substances, both essential to growth. Since neither of these alone sufficiently fulfils the concept for which the term vitamin B has stood, it would seem unwise to reassign this familiar term to either of the substances which together it has hitherto covered, and much wiser to let "vitamin B" be spoken of as "vitamin B complex" so that the relation between designation and connotation shall not undergo any confusing change; and it is proposed[2] that the two fractions of the vitamin B complex which are at present clearly recognized be designated respectively as vitamins F and G. (These will be easily remembered because F will stand for the antineuritic substance so closely associated with the name of Funk; and G for the factor which Goldberger believes to be preventive of pellagra.)

Few new ideas in science have gained currency with the public so rapidly as has the idea of vitamins. Nor has it escaped commercial exploitation. Numerous preparations are being marketed through the

* Report of the Committee on Nutritional Problems presented to the Food and Drugs Section of the American Public Health Association at the Fifty-sixth Annual Meeting at Cincinnati, O., October 19, 1927.

drug trade at high prices under claim of containing one or more of the vitamins in relatively concentrated form. This is not the place to attempt the discussion of the merits of such preparations. In due time their standardization will doubtless receive the attention of the federal authorities charged with the administration of the Food and Drugs Act.

To us as a Committee on Nutritional Problems, it appears that, while the physician may occasionally desire to employ a vitamin concentrate, the public will find it much safer and more economical to obtain vitamins as normal constituents of a wisely chosen food supply than from the drug store, whether in the form of pills, powders or extracts, or at the soda fountain. Even should all such preparations be held to the complete fulfillment of their claims for vitamin values, it is plain that in order to yield the manufacturers a profit all such highly manipulated products must be sold at prices which make their vitamins cost more than when these vitamins are purchased in the form of foods. When the importance of the vitamins is fully recognized and given due weight in the planning of food supplies, there will probably be but rare occasion for the purchase of vitamins in any other form than that of staple foods.

We wish to emphasize, however, the need for full recognition of the importance of conserving the natural vitamin values of foods to the fullest possible extent; and of frankly acknowledging that every diminution of vitamin content is a diminution of food value. Up to the present we have, perhaps, been too complacent on this point, tending sometimes to evade serious consideration of it on the ground that "we will probably get enough of the vitamin in our liberal mixed diet anyway." But we do not ignore the abstraction of a part of the cream from market milk on the ground that the partially skimmed milk is still an excellent food and that our mixed diet would probably furnish us enough fat anyway; we recognize that to whatever extent the milk-fat with its vitamin A is diminished, to that extent the food value is lowered. So we should recognize with equal clarity and frankness that when much of the vitamin B of wheat or rice is removed in milling, or much of the vitamin C of cabbage or spinach is lost in cooking or canning, to that extent there is a diminution of food value, however excellent the resulting product may be, and however likely that at least our minimum requirements for vitamins will be met.

Especially should this be emphasized in view of the fact that recent investigations tend strongly to the view that "enough" is an ambiguous term as applied to our vitamin intake, because the optimum (the amount that we can use with greatest advantage to our health) is apparently manyfold greater than the amount which we must have

to protect us from deficiency disease. Of total food (calories) we can advantageously use only a little more than we actually need, for the surplus, stored as fat, would soon render us too stout; of protein no large surplus can be stored and an intake more than double the actual requirement is rightly regarded as a possible source of danger; but in recent experiments with vitamins, intakes of several-fold the amounts demonstrably needed have shown no danger but on the contrary have proved distinctly advantageous. Hence, while for some factors of food value and nutritive requirement the optimal intake is only a little above the actual need, with the vitamins the case appears to be different and more like that of fresh air—we can exist without conspicuous injury on relatively little, but we can use advantageously a manyfold larger allowance, generally as much as we can conveniently get.

VITAMIN A

It seems unnecessary to recall here the story of the simultaneous discovery and early investigation of vitamin A by McCollum and Davis [4] and by Osborne and Mendel [5] or to rehearse the abundant evidence that a shortage of vitamin A in the food, results, sooner or later, in a widespread weakening of the tissues and functions of the body. Wolbach and Howe,[6] among others, emphasize the fact that in addition to the well known eye trouble, shortage of vitamin A causes many other pathological changes. These include the presence of abscess-like cavities filled with yellow cheesy-like material at the base of the tongue, in the pharynx, and in the submaxillary glands. They find that the cavities are cysts lined with a stratified keratinizing epithelium and the cheesy mass of mixture of desquamated keratinized cells and leucocytes. Microscopic study of the lesions in rats killed at progressive stages of vitamin A deficiency has shown that the principal change is "transformation of various epithelia into a stratified squamous keratinizing epithelium. This change is practically constant in the upper respiratory tract, including the whole of the nasal passages, larynx, trachea, and bronchi." Similar pathological changes are found widely distributed elsewhere in the body also. Because so many of our staple foods are so poor in vitamin A and because a shortage of this substance weakens the body in so many ways and increases its susceptibility to so many infections, it appears probable that differences of intake of this vitamin, more than of any other, affect the general health and length of life of the people of today—and this through such differences in food habits as are so familiar as to be regarded with indifference.

The experimental evidence suggests that vitamin A probably plays

in the body the double rôle of a tissue constituent and also of a "regulatory" substance concerned with the maintenance of normal conditions and the control of nutritional processes.

Several investigators have emphasized the fact that respiratory disease is more frequent among experimental animals whose food is relatively poor in vitamin A, and it has also been found by careful experimental investigation that in such cases there is also an actual diminution of the vitamin A content of the lung tissue. Conversely, a liberal intake of vitamin A leads to increased resistance, a higher vitamin A content of lung tissue, and an increased storage of this vitamin in the liver. Muscle tissue contains but little vitamin A in any case.

Recent investigation has strongly emphasized both the extent to which the body can store vitamin A, chiefly in the liver, and the great importance of such a reserve store of this vitamin to the life and health of the individual. In a carefully conducted series of experiments upon laboratory animals, vitamin A was fed up to about 80 times as much as is usually considered necessary for adequate nutrition and even this high level of intake was found advantageous through increasing the amount stored. In these experiments with rats, the body usually had acquired its maximum reserve store of vitamin A at about the time that the growth was completed; but by liberal feeding with food rich in this vitamin it was possible to build up in a younger animal a larger store than the maximum ever acquired by the animal of less fortunate nutritional history.[6]

Since the storage of vitamin A in the body has thus been shown to be so important, it becomes plainly a wise economy to invest rather freely in this factor of food value in order that the body may be adequately insured in this respect.

In the light of this newer knowledge regarding the extent and significance of the storage of vitamin A in the body, it becomes probable that the supposed lesser need for this vitamin by the adult than by the young is apparent rather than real, and is largely attributable to the facts: (1) that the development of the adult has carried him beyond the point at which a deficiency becomes quickly manifest in any such apparent sign as the cessation of growth; and (2) that the adult has presumably had more opportunity to provide himself with a bodily store of this vitamin which then carries him over periods of deficient intake.

That vitamin A plays an extremely important part in the nutrition not only of the young but also of the adult is now well established.

Sherman and MacLeod[7] have described experiments in which

parallel groups of rats of identical previous history were fed upon two types of diet, one rather low and the other fairly high in vitamin A, from soon after weaning-time until natural death. The smaller amount of vitamin A proved sufficient for normal growth up to nearly normal adult size, but not for successful reproduction, and rarely did it support satisfactory longevity. The parallel animals receiving the more liberal allowance of vitamin A grew to fully average adult size; were successful in reproduction and the rearing of young; and lived on the average a little over twice as long as those on the diet equally good in all other respects, but lower in vitamin A.

These experiments show strikingly that a proportion of vitamin A in the food, sufficient to support normal growth and maintain every appearance of good health for a long time at least, may still be insufficient to meet the added nutritive demands of successful reproduction and lactation.

Along with the failure to reproduce successfully there usually also appeared in early adult life an increased susceptibility to infection, and particularly a tendency to break down with lung disease at an age corresponding to that at which pulmonary tuberculosis so often develops in young men and women.

The bacillus involved is different; but the close parallelism of increased susceptibility of the lung to infection at this stage of the life history appears very significant, especially in view of the fact[8] that the vitamin A content of lung tissue varies with that of the food.

Especially noteworthy was the repeated observation of young females growing normally and presenting every appearance of good health throughout youth on a diet low in vitamin A but failing utterly to succeed in the rearing of a second generation, and showing a strong tendency to break down in health at an age at which they should have been in the prime of life.

Thus it is clearly shown that vitamin A is an even more important factor in health and in food values than has previously been appreciated, for it must be supplied in liberal amounts not only during growth but in the food of the adult as well, if a good condition of nutrition and a high degree of individual and community health and vigor are to be maintained.

In view of the manifest importance of such quantitative differences in vitamin A intake as may readily occur among people living upon diets regarded as normal, methods for the measurement of the relative amounts of this vitamin in different foods have been developed and the more quantitative our information becomes, the more we are

impressed with the extremely wide differences among foods with respect to their vitamin A values.

Vitamin A is formed in the green leaves of plants and in general these are much richer in this vitamin than are other organs of the plant. The pale inner leaves of headed lettuce and cabbage are not nearly so rich as are the green outer leaves; and recent careful work has shown that the green plant tissues other than leaves which we use as food in the form of string beans and green peppers, are, like the green leaves, rich in vitamin A.

Animals obtain their supplies of this vitamin from plants, either directly or through other animals. Vitamin A can be stored in the animal body as already noted. This storage occurs mainly in the liver; but significant amounts may also be stored in adipose tissue, depending upon the food of the animal and the rapidity of fattening. Muscle tissue contains very little vitamin A, even when the food has furnished it in abundance. The amount in the glandular organs is variable depending upon how the animal has been fed. Eggs and milk are more important and constant sources of vitamin A than are any of the body tissues.

It is chiefly because of their outstanding importance as sources of vitamin A, as well as of calcium, that McCollum has designated milk and the green vegetables as the "protective foods." [10] In view of the foregoing it seems advisable to repeat the recommendation made by the committee in its report of last year, namely, to emphasize the importance of including milk in the daily diet to the extent of at least a quart for every child and not less than a pint for the adult.

Space does not permit any detailed discussion here of the stability of vitamin A; but, in brief, it may be said that this vitamin is sufficiently stable under all the conditions commonly encountered in the industrial and household manipulations of the foods which chiefly furnish it, so that foods of the kinds indicated as good sources may usually be counted upon to retain their value in this respect as they appear upon the dining table. The recent work of Miller [11] shows that heating at reduced acidity or slight alkalinity (about pH 9) which is very destructive to vitamins B and C, has little effect upon vitamin A.

In view of the limited time allowed for each communication at these meetings, and the fact that committee reports should be published in the same form in which they are presented and accepted, it is impracticable to discuss the other vitamins in the present paper. If the section desires, we shall be glad to report in similar manner upon other vitamins at a subsequent meeting or meetings.

H. C. SHERMAN, *Chairman* — I. GREENWALD
C.-E. A. WINSLOW — T. P. B. JONES
E. L. FISK — D. B. JONES

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The Parker Bill Is Passed

THE Parker Bill for the coördination of the public health activities of the federal government was passed by the House of Representatives on March 7, 1928. This measure, H. R. 11026, is in somewhat revised form, as the original first section, which would have given the President power to transfer to the U. S. Public Health Service bureaus carrying on health work, was deleted, and the second section was changed, so that scientific personnel of the U. S. Public Health Service would be detailed to other bureaus not by order of the President, but only at the request of an executive department.

The remainder of the bill is the same, and contains important provisions for increasing the scope of the Hygienic Laboratory, giving a commissioned status to sanitary engineers and other non-medical scientists, the creation of a nurse corps, establishment of a national advisory health council, and the detail of scientific personnel to educational and research institutions.

Before this bill can become a law it must be adopted by the Senate and signed by the President. A companion measure, S. 3356, has been introduced in the Senate by the Honorable Wesley L. Jones of Washington and has been referred to the Committee on Commerce of which Mr. Jones is chairman. In spite of the emasculation of the first two sections, the bill still is of vast importance to national health, and sanitarians should now communicate with their senators and urge their support for the Jones bill for federal health coördination.

Time and Cost Study Problems*

AN analysis of the problems of the time and cost in nursing involves the following points:

Does the present method of computing costs, with the visit as the unit, satisfy our needs?

If not, would it be of benefit to establish a cost based on time, but translated into time by each type of visit?

Is it practicable to work toward a specification form for content of visit?

How will the charge item be adjusted?

Is it not worth while for each visiting nurse service to study the situation further?

Referring to the first item it was pointed out that the causes for variations in costs per visit have been ignored. Too, in trying to reach comparable figures there has been an effort to reach the same number of visits for each organization. This leads to a speeding-up process which is a decidedly poor method of obtaining good work from a staff.

The nursing day is divided into travel, record keeping, field work, conferences and hours devoted to staff education.

We are already putting into practice many suggested schemes for decreasing travel and record time, and thus releasing time for field activities.

The fact that the visiting nurse is the logical agent to disseminate health education for disease prevention was emphasized in the report. In order to discharge her duties in a most satisfactory way it is necessary for her to acquaint herself with most recent facts, for instance in the fields of nutrition and mental hygiene, and to confer with experts about her special case problems.

Time is needed. If time is allowed, then visits go down and costs go up, and by following our present methods of computation, the very things we want for the promotion of community health are forbidden us because they make our cost prohibitive.

After further analysis of this point it was suggested that nursing organizations adopt "the average time per type of visit as the cost unit," and "instead of stating our charge on the basis of time, the visiting nurse service can quote its rates to the patient on the basis of type of work done."

If our nursing is figured on basis of time spent, the acute nursing costs will be properly allocated and the increased charge for these services will permit us the opportunity we want for the educational and preventive program.

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* Abstract of a paper, Time and Cost Study Problems, by Marguerite A. Wales, R.N., General Director, and Mabel C. DeBonneval, Statistician, Henry Street Visiting Nurse Service, New York, N. Y., read before the Public Health Nursing Section of the American Public Health Association at the Fifty-sixth Annual Meeting at Cincinnati, O., October 19, 1927.

The complete paper will appear in the March, 1928, issue of the *Public Health Nurse*.

Another reason given for the adoption of the time unit figure of cost was that it would direct attention to the quality of work and to the content of the visit.

Since the American Public Health Association is working toward specification of content of service, might it not be well to institute an appraisal form of our nursing visit content. There would be one form for the ante-partum visit, one for the post-partum, etc., and by an inspection of the form as related to each organization's work we could readily account for the time spent in the visit. It will indeed be necessary to adopt some such method, because if we use only the time unit and we come to a comparison of similar services in communities, we have no way of arriving at any standard of time.

An analysis must be made of the division of time given over to the various services and the nursing organizations must be cognizant of the health needs of the community.

An ever present source of concern is that the fear that the cost of visiting nursing will become a prohibitive item . . . Any growth in the welfare program means a corresponding increase in the average per visit cost, so that the net result is a lessening of the fee charged for contract acute work. Until the associations have studied their visits we cannot say what the result of this change of basis of charge would be.

Disposal of Sewage and Industrial Wastes

Definitions of Terms*

Mr. John F. Skinner, Chairman,
Committee on Disposal of Sewage and Industrial Wastes,
Public Health Engineering Section, A. P. H. A.
Dear Sir:

I hereby present the following report on Definitions of Terms Used in Sewerage and Sewage Disposal Practice.

In 1915 the Committee on Sewerage and Sewage Disposal of the American Public Health Association, George S. Webster, Chairman, undertook the preparation of "Definitions of Terms Used in Sewerage and Sewage Disposal Practice," and at the Annual Meeting held in October, 1917, after considerable study, involving the replies to questionnaires and a large amount of correspondence and discussion, the committee presented its report. This was printed in the October, 1917, JOURNAL but was never brought up for official approval. Meanwhile sewage disposal especially was being developed along new lines and by 1923 it was felt desirable that the entire subject should be reviewed and the definitions brought up to date and formally adopted by the Association. A new committee was thereupon appointed with Mr. John F. Skinner, Chairman.

* The Definitions of Terms Used in Sewage Disposal Practice, which is the Report of the Joint Committee of the A. P. H. A. and the A. S. C. E., will be published as a manual by the A. S. C. E. Members of the Public Health Engineering Section of the A. P. H. A. will receive copies. See *A. J. P. H.*, Feb., 1927, p. 199 for report of committee.

Meanwhile the subject had received attention from the Sanitary Engineering Division of the American Society of Civil Engineers, who appointed a similar committee with the late Prof. George C. Whipple as Chairman. At the Annual Meeting in 1924, on the receipt of the report of Mr. Skinner's committee a Resolution was passed by the Sanitary Engineering Section of the Association providing for coöperation between the two committees in the preparation of a joint report. This Joint Committee submitted a Questionnaire which brought out a large number of suggestions. These were to a considerable extent canvassed and tabulated when it was decided to turn over all the material and results reached at that time to the undersigned to prepare a final draft. This draft would then be submitted to each of the two organizations interested for approval.

As there were a number of definitions concerning which there remained a decided difference of opinion, these were submitted to ten engineers of prominence in sanitary engineering, who had not it is believed, with one exception, served on past committees devoted to the subject. The answers received, together with a number of valuable suggestions offered voluntarily by others, served to clarify the debatable points to such an extent that the entire list could be put in shape for presentation.

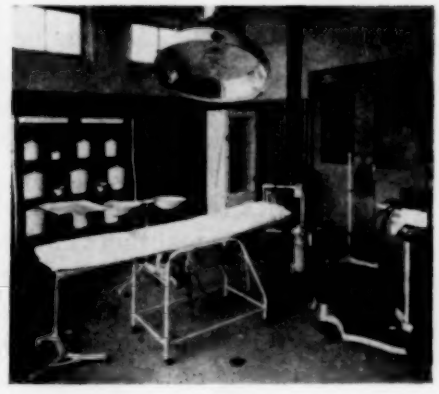
Owing to the extended and conscientious study given to this matter and the care taken to meet the views of those whose judgment was believed to carry particular weight in these special lines of technology, it is hoped that the final list as now submitted may meet the approval both of the American Public Health Association and the American Society of Civil Engineers.

In both the theory and technic of sewerage and sewage treatment we are making a steady advance. Especially is the matter of treatment undergoing a process of evolution. Under these conditions some terms now in use may become obsolete or modified in meaning while new terms will come into common use. For this reason no set of definitions can be said to be adequate and proper for all time but should be subject to a periodical revision, say once a decade, and it is with this reservation that the definitions are herewith submitted for approval.

KENNETH ALLEN

First Maternity and Infant Health Center in Milan

IN compliance with the provisions of the Italian maternity and infancy welfare law of 1925 the first maternity and infant health center was recently established in Milan. The purpose of this health center is the promotion of maternal and infant health rather than the treatment of physical defects. Several organizations, among them the Maternity Insurance Fund of Italy, and the Italian Infant Welfare Union, one an official, the other a private organization, coöperate in the management of the center. The center is equipped according to modern hygiene standards and the work is done by a trained staff. A woman graduate in puericulture will soon be appointed as home visitor to replace the volunteers now connected with the center.—*La Pediatria*, Naples, Nov. 1, 1927, p. xix.



POMONA'S HEALTH CENTER

The Pomona Health Center, recently opened to serve the citizens of Pomona, California, was erected by Los Angeles County at a cost of $68,000. The site was given by the City of Pomona and the institution is located adjacent to the other municipal buildings in the civic center. It is considered one of the most adequately appointed and modern health centers in the country. The center is equipped and staffed to give service and treatment to those seeking it.

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OF WHAT USE ARE OUR HEALTH OFFICIALS?

IT is worth while to consider the answer to this question. It will give faith, courage and hope to our health officers. It will remind a generation passing off the stage of terrors well-nigh forgotten, and it may lead many others, complacent in our 20th century environment, to a fuller appreciation of the riches of health that have been won with so much toil.

Fear is the genesis of the health officer. American public health is built on a foundation of epidemics. In the mid-19th century no city was free from the fear of yellow fever, smallpox, cholera and the dreaded ship fever brought in by our hordes of immigrants. Typhoid fever, just differentiated from typhus, was reaping a harvest in our growing cities. Scarlet fever, then a virulent disease, appearing in waves, was the great terror of mothers until a worse came in the form of diphtheria in the late 50's. In the early years, special boards, or committees, were organized by communities to cope with the outbreak after it was upon them, and they did splendid work, though often ineffective because too late. Far-seeing citizens began to realize that, as in fighting fire, so in fighting disease, it is necessary to be ready at the first alarm. The emergency boards of health became permanent and there has thus gradually grown up our organized public health service, national, state and local.

The terror inspired by the great epidemics of the 19th century has vanished. Even the health workers have forgotten that cholera once caused a death rate of 140 per 100,000 population in New Orleans and stopped all business in New York; that yellow fever brought commerce to a standstill and depopulated large cities; that typhoid fever caused a mortality in one year in Chicago of 175 per 100,000 population; and that diphtheria death rates of over 300 were not unknown. In the 70's of the 19th century, as on many previous occasions, smallpox ravaged our cities and towns, paralyzing business, and wasting millions of

dollars. That things are better now is due almost entirely to official health work. There were then no foundations to combat cholera, no typhoid fever associations, no anti-smallpox societies; though there was an organization of anti-vaccinationists to hamper the health officers in their work.

Just as rapidly as science has shown the way, official health workers have followed. It is true that scarlet fever and diphtheria still prevail, but do not kill as formerly. If Chapin's theory is correct, the isolation of the severe strains of scarlet fever has been an important factor in making the deaths negligible. So, too, the phenomenal decrease in diphtheria mortality is due, in large measure, to the efforts of health officials in encouraging the use of antitoxin and in securing the immunization of children. Of all the great epidemics, influenza is the only one against which science has failed to furnish health officers with effective weapons.

In the warfare against infectious diseases, official health agencies employ means which cannot be used so effectively by other agencies, if used at all. Thus the control of the environment is naturally a municipal or state function. State and local health officers have shown the need for the protection of water supplies and have indicated how this may be secured. They have shown the necessity for proper excreta disposal, not only for cities and villages, but for every farm in the land. Health officers have never feared to urge public improvements necessary for the public health, even when opposed by politicians, the press and powerful commercial interests. It is almost entirely due to such efforts that typhoid fever is a vanishing disease. It is because municipal health officers have banished *Aëdes aegypti* from our cities that yellow fever is extinct. Malaria and hookworm disease can be controlled by controlling the environment, and progress is dependent upon local official county health organization.

Though the isolation of contagious diseases is not the panacea it was at one time thought to be, it is still indispensable and must necessarily be enforced by state or local officials. Of greater importance is immunization. Long experience has shown that, if left to their own devices, comparatively few will avail themselves of the benefits of this method of protection against smallpox, typhoid fever, diphtheria, rabies, or other diseases. Only the health officer has the interest to push this practice to an extent to secure worth while results and, even in the presence of virulent smallpox, he finds it difficult enough. Until recently other agencies have done little.

Though the importance of pure food to good health has been much exaggerated, it is necessary that a fairly strict supervision be kept. This is especially true of milk. The public and the medical profession

would be greatly disturbed, and not a little harm would result, if we should revert to the *laissez faire* practice of half a century ago.

Another great thing which the health officer has accomplished for the public and for the medical profession is the establishment and popularizing of the diagnostic laboratory. The first of these laboratories was set up in the health department of New York City and fortunate it is that other city and state departments so rapidly followed suit.

An allied health department activity is the distribution and in some instances the production of biological products. Again New York City showed the way by distributing and by making known the value of diphtheria antitoxin. When one sees the number of physicians who now fail to use this remedy, one wonders what the loss of child life would have been if health officials during all these years had not constantly preached to the public, and to the doctors, the value of this remedy. They find it necessary to continue the preaching even now.

With the control of the old time epidemics, health officers did not rest on their oars. The advancement of medical science has been continually developing new methods for fighting disease and promoting health. Many new and unofficial agencies have come to the aid of official health officers and have done much to stimulate the less energetic and the poorly equipped among them. Not only have the old time epidemics disappeared, but the general death rate has been cut in two and phenomenal progress has been made in prolonging life and in reducing a number of specific death rates. Better economic conditions, better medical treatment, the entrance of many new agencies into health work, as well as other factors, have had a share in securing these results. Health officials, especially local health officers, have had an indispensable share in the great work.

The new health movement of the present century relies largely on education. For many of the agencies which are employing it so strenuously this is somewhat of a venture. So long, however, as there have been health officials, it has been one of their most important duties to educate their communities. Of late years they have been taking a leading part in this movement. Efficient health officers, if the politicians let them stay in office long enough to get acquainted with their constituents, wield an enormous influence and, through their bulletins, posters, lectures, newspaper articles and other means, perhaps accomplish more even than does more elaborate material from a distant source. Bundesen, just before his removal, got out some exceptionally fine literature, but the budget of most health officers does not permit them thus to vie with the great foundations.

Every health officer, whether medical or otherwise, realizes that the

scientific practice of medicine is the foundation of public health. State health officers have for years striven valiantly to improve medical licensure, to drive out the quacks and to fight nostrums. A great number of health officials, particularly local health officers, have done an immense amount of good by their bulletins, lectures, radio talks and newspaper articles in acquainting people with the achievements of medicine and in leading them to a firmer trust in scientifically educated physicians. The full-time health officer has a tremendous advantage in this, for the people believe that he has no ulterior motive. Perhaps the surest way to combat quackery is not by use of police power, but by the more positive and permanent method of leading the public to realize the worth of the well educated physician.

The 20th century public health movement is characterized by the development of unofficial agencies to combat specific diseases, or to promote personal health. To a far less extent than in the fight against epidemics, does this movement involve the exercise of police power and so is less dependent upon official action. Nevertheless, the antituberculosis campaign would be greatly handicapped if no control could be exercised over recalcitrant cases, if notification were not compulsory and if mortality and other data were not collected by official statisticians. It would be impossible to carry on the present fight against venereal diseases without the aid of the health officers. Though private agencies are doing much for the prevention of blindness, state and municipal health officers must be the ones to distribute prophylactics and to secure proper care of infected babies.

Though voluntary agencies have done splendid work in protecting the health of the infant and of the school child, the great burden of directing consultations, prenatal clinics, control of midwives, supervision of boarding farms and day nurseries and the medical supervision of school children falls upon health officers, sometimes in the health department and sometimes in the school department.

To an even greater extent, the campaigns against malaria and against hookworm infestation are made to center around the local health organization.

Then, too, the part played by official health workers in the development of voluntary organizations must not be forgotten. They have always been active promoters of the national, state and local associations.

The number of agencies actively engaged in promoting the public health is large. Perhaps their work sometimes overlaps, but there is room for all. Coördination and coöperation are necessary, and in the state, the city, the town and the country, the health officer, the legally constituted representative of the people, is the logical agent for bringing about this coördination, for it is he who works continuously, and

for the most part successfully, for this. It is impossible to conceive of health work as going on effectively in our thousands of communities except as centering around the health officer. Indeed it is a matter of common knowledge that health has improved to a greater extent in our cities with their well organized health departments than it has in rural districts, such a large proportion of which are still without an adequate public health service.

The Rockefeller Foundation is devoting its chief effort in the cause of public health to the development of local health organization and to improving its personnel. The U. S. Public Health Service, the State health departments and the insurance companies all believe that the local health executive must be the center of community health work. What is needed is not an increase in his powers, but protection against wicked political interference.

COMMON CAUSES OF ALLERGIC DISEASE

WHILE seldom dangerous to life, there are few things which cause greater discomfort than hypersensitiveness, the importance, as well as frequency of which has been so abundantly demonstrated during the last few years. Many cases of asthma, for example, which had made the sufferer practically hopeless of future usefulness, have been cured by very simple means. In spite of all that has been written, it is probable that the great majority of physicians are still not aware of the various substances met with in daily life which produce allergic disease.

Success in the treatment of these troubles depends upon the acuteness of the attending physician in connecting cause and effect. Biological houses carry long lists of substances with which one comes into daily contact, by the use of which the cause of the trouble is often easily diagnosticated through the skin test, and the cure is often easy. On the other hand, some very puzzling cases are met with. We recall one in which contact with silk in practically every stage of manufacture produced most alarming symptoms. In other cases the patient is found sensitive to a number of substances and then the doctor must rely upon his common sense and observation to connect exposure and the result of the skin test. A recent writer [1] has stated that this is generally due to our ignorance of, or disregard for, the relation between raw materials and the finished commodities with which one may come into frequent contact.

It is impossible to give here the complete list of substances in common use which may be the cause of allergic disturbance, but among them we must call attention to pillows, usually made of the feathers of some bird, or of different fleeces and animal hairs; mattresses, which

are usually made of some fiber or hair; blankets and rugs which are made of cotton, wool or some animal product; furniture which is upholstered with various fibers as well as animal fleeces; clothing made chiefly from cotton and animal fleeces; and furs, which are practically always animal fleeces, but very often mislabeled, and given some fancy name, which makes recognition difficult. The majority of furs are not purchased under their proper names. Most of them are clipped, sheared, dyed and otherwise manipulated to make them resemble more expensive products. There are a number of materials which contain no silk at all, but are sold under names suggesting that they contain or are made of silk.

In other cases where clean cotton, for example, is supposed to be the material used, practically all of the hull and dried seed will be found. Many materials made of cotton are sold under names suggesting that they are made in part or in whole of linen.

So the story goes, and the physician may be obliged to go through a large number of substances which are not even suggested by the names of those which he has reason to believe that the patient has come into contact with.

The partial or complete mislabeling of fibers used in the manufacture of domestic goods is extremely common. It is a matter over which the medical fraternity has no control, though it suffers from difficulties of diagnosis and treatment in consequence.

One might expect, in this day of the almost universal employment of cosmetics, that we would be able to add a number of these to the list, but orris root, which is very widely used, seems to be the only one which is frequently found at fault. It produces asthma, skin disturbances and hyperesthetic rhinitis. Almost all face and tooth powders contain orris root, and it is widely used in making perfumes. New names are being constantly invented, which further tax the ingenuity of the physician in making his diagnoses.

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ASSOCIATION NEWS

COMMUNITY HEALTH AND HOSPITAL SURVEYS

THE attention of the members of the Association is invited to the following statement from a sub-committee of the Committee on Administrative Practice. The program as outlined has been developed by the Sub-Committee on Organized Care of the Sick, reviewed by the Executive Committee of the Committee on Administrative Practice and submitted to 564 state, county and local health officers to whom the *Health Officers' News Letter* is addressed, and is now submitted to the members of the Association at large for their information and for criticism and suggestions upon this tentative statement of policy of community surveys.

What restrictions or extensions upon the type of survey described in this statement do you believe should be laid down by a committee of your Association? Has your community a problem involving the facilities for organized care of the sick which such studies might help to solve?

C.-E. A. WINSLOW, Dr.P.H., *Chairman*,
Committee on Administrative Practice

DURING the past year the Committee on Administrative Practice has been called upon to broaden the scope of its surveys and appraisals, having been requested in two cities, in which appraisals were asked for by the health officer, to include also studies of the hospitals and other organized facilities for the care of the sick. At the present time requests of similar scope are pending both from cities and several rural areas. It was decided last year by the committee to meet the requests, and on the basis of the experience gained, to determine thereafter the scope and policy appropriate to surveys conducted under the committee's auspices in the future. It is apparent that a real demand exists for a broader type of survey than had been conducted by the committee previous to 1927, and that facilities for the organized care of the sick are so closely related to the public health interests that the two should often be studied and considered together. On the other hand, it is obviously desirable for the American Public Health Association not to go beyond the field appropriate to a national association, whose primary interests lie in prevention rather than in curative work, or in individual medical practice.

For the purpose both of defining the problems that should be dealt with, and of guiding the scope and method of future surveys, a sub-Committee on the Organized Care of the Sick has been formed with the undersigned membership, representing various interests, in order to touch all the essential phases of the problem. Three members of the committee have been suggested informally by the president of the American Hospital Association.

The sub-committee, in several meetings and by correspondence has given careful consideration to the extent and limits which are appropriate to surveys under auspices of the Committee on Administrative Practice. The committee is prepared to consider requests and suggestions for surveys including hospitals, out-patient departments and other clinics, city physicians and other organized resources for the care of the sick.

The committee will not be concerned with studies of internal administration of hospitals or in the personal diagnostic or therapeutic care of patients by their physicians in hospitals or clinics, the planning and construction of their physical plants or the technical and educa-

tional standards involved in any of these institutions. It is intended that the Association carefully avoid entering fields in which such organizations as the American Medical Association, the American College of Surgeons and the American Hospital Association have primary interests and important existing activities.

Surveys within the proper scope of the committee will be regarded for the present as including such matters as the need for hospital beds, clinics or other organized curative facilities of a community; the social and economic groups for whom such facilities are needed; the geographical distribution and the interrelations of these facilities to one another and to other interests and agencies of the locality. Surveys of this type would ordinarily be conducted in connection with a study and appraisal of the official health department, the health work of the board of education and voluntary agencies (Visiting Nurse Association, tuberculosis association, etc.) requested by the health officer.

The sub-committee has been charged with the responsibility of supervising the policies and methods of future studies involving the organized care of the sick. All future requests for surveys in which this is a factor will be carefully studied with the aim of defining the appropriate scope of the study and the elements of the local problem, to render each study as effective and as inexpensive as possible. The sub-committee has also in hand the preparation of suitable survey schedules.

The expense of surveys includes the actual cost of the field work, plus an allowance for expenses of the central office incurred in connection with the survey, including time of professional and clerical staff.

The committee regards this policy as tentative. It is entered into in response to apparent demand from the field itself.

Sub-Committee on Organized Care of the Sick
MICHAEL M. DAVIS, Ph.D., *Chairman*
HAVEN EMERSON, M.D.
WILLIAM J. NORTON,
WATSON S. RANKIN, M.D.
D. L. RICHARDSON, M.D.
W. C. RUCKER, M.D.
GEORGE C. RUHLAND, M.D.
W. F. WALKER, D.P.H., *Secretary*

ENUMERATION OF PUBLIC HEALTH WORKERS

THE Executive Board of the Association has authorized an enumeration of public health workers. Plans are now in process of preparation by a Committee on Census composed of John L. Rice, M.D., Health Commissioner, New Haven, Conn., Chairman; Prof. John F. Norton; Arthur E. Gorman; George Van Buren; Prof. C. E. Turner. The first task of this committee is to establish definitions and classifications. The committee met on February 10 and will meet again March 15.

CENTRAL PROGRAM COMMITTEE

AT the first meeting of the Central Program Committee, held on February 11, it was decided to begin the Annual Meeting program with the opening General Session on Monday evening, October 15, reserving the first day for committee meetings and meetings of related organizations. The program of the sessions will begin on Tuesday morning and continue through until Friday afternoon. The General Sessions will also be held on Wednesday and Thursday evenings, one of these sessions probably being a banquet.

The section programs are rapidly taking shape and plans are under way for joint sessions between the Health Officers and Public Health Nursing and Child Hygiene Sections; the Laboratory Section with the Food, Drugs and Nutrition Section and with the Public Health Engineering Section. The Laboratory Section will also have a joint session

with the Child Hygiene and Industrial Hygiene Sections on the subject of ventilation. Some of the sessions of the Child Hygiene Section will be held jointly with the American Child Health Association, which will hold its Annual Meeting at the same time.

All sessions will be held at the Hotel Stevens. The usual technical exhibit will be held in the exhibition hall at this hotel and space is being rapidly reserved by the leading manufacturers of scientific equipment and health products.

AWARD FOR PUBLIC HEALTH WORK

RHODE Island has won the prize for the year 1927 offered by the General Federation of Women's Clubs for having the highest percentage of local clubs engaged in public health activities. The award is one month's service of one person engaged in making a survey of a particular community. Warwick, R. I., was selected by Dr. B. U. Richards, State Commissioner of Health, as the community to receive this service. The field work will be rendered by James Wallace, M.D., Associate Field Director, Committee on Administrative Practice, American Public Health Association, and Lucy Oppen, Staff Associate, Division of Health Education, American Child Health Association. The report of this survey will be published by the Metropolitan Life Insurance Company.

POCKET MEMBERSHIP CARDS

ATTRACTIVE yellow pocket cards have been prepared to be sent to all members and Fellows of the Association, who are in good standing with their Association. They will be mailed April 1.

NEW MEMBERS

Jane C. Allen, B.S., R.N., New York, N. Y., General Director, National Organization for Public Health Nursing

M. Elizabeth Barker, S.B., M.S., Springfield, O., Director, Health Education, Wittenberg College

John Barnes, Dorchester, Mass., Mechano Therapy (Assoc.)

Charles W. Bartlett, M.D., Tampa, Fla., City Health Officer

Howard H. Bell, M.D., St. Louis, Mo., Tuberculosis Controller

Mrs. Don C. Bliss, Jr., Singapore, S. S. (Assoc.)

Alice F. Blood, B.S., Ph.D., Boston, Mass., Director of the School of Home Economics, Simmons College

Walter B. Bruce, M.D., Helena, Ark., County Health Officer

J. P. Bushong, M.D., Los Angeles, Calif., Supervising Certified Milk Production, Los Angeles County Medical Association

Nellie E. Bussell, B.A., M.A., Chicago, Ill., Head, Physical Education Department, Chicago Normal College

Ada Chew, Chelsea, Mass., Staff Nurse, U. S. Naval Hospital (Assoc.)

Roy F. Courtney, M.D., Leadville, Colo. (Assoc.)

John D. Craig, Dover, O., Health Commissioner and Sanitary Police

Mary E. Davidson, Hillburn, N. Y. (Assoc.)

A. D. DeHaven, M.D., Xenia, O., Health Commissioner

Robert C. Dryden, Pima, Ariz., City Health Officer

G. F. Earnshaw, Newton, Mass., President, Earnshaw Sales Co. (Assoc.)

Robert H. Elrod, M.D., Toledo, O., Health Commissioner

Helen L. Felkner, Ostrander, O., Instruction Nurse, Division of Public Health Nursing, State Department of Health

Marion Ferguson, R.N., Kansas City, Mo., Field Nurse, Missouri Tuberculosis Association

Ernest B. Ford, Little Rock, Ark., Sanitary Inspector

Sylvia M. Gagner, R.N., Nashua, N. H., Director and Supervisor of Good Cheer Society's Visiting Nurse Service

Fuejo Garcia, M.D., Vigo, Spain, Quarantine Officer

Mary L. Hahn, M.S., Springfield, Ill., Specialist in Health Education for State Teacher Training Colleges

Walter H. Hassed, M.D., Cheyenne, Wyo., State Health Officer

J. J. Heaton, M.D., Tiffin, O., District Health Commissioner

Rhoda G. Hendrick, M.D., Lansing, Mich., Lecturer on Prenatal Care, Bureau Child Hygiene, State Department of Health

Percy R. Howe, D.D.S., Boston, Mass., Chief of Research Laboratory, Forsyth Dental Infirmary

Irma Law, B.S., R.N., St. Louis, Mo., Inspector and Field Representative, State Board of Nurse Examiners

Bertram B. Jaffa, M.D., Denver, Colo., Manager of Health and Charity, City and County of Denver

Park B. Jenkins, M.D., Waubay, S.D., Superintendent of State Board of Health

Vern R. Jones, Wyandotte, Mich., Manager of Cleaner and Cleanser Department, J. B. Ford Company (Assoc.)

Arnold H. Kegel, M.D., Chicago, Ill., Health Commissioner

James P. Kilcourse, LL.B., Chicago, Ill., Chief Bureau of Food Inspection, Department of Health

Benjamin S. Kline, M.D., Cleveland, O., Sero Diagnosis of Syphilis

Lillian M. Lecinski, R.N., Detroit, Mich., Supervisor Hamtramck Board of Health

Laban W. Leiter, D.Sc., Baltimore, Md., Laboratory Director, Fairfield Farm Dairy, Inc.

W. A. Mansfield, M.D., Barberton, O., Health Commissioner

Ruby H. Manter, A.B., Minneapolis, Minn., Bacteriologist in Charge of Branch Laboratory, State Department of Health

E. B. Maynard, M.D., Major, M.C., U.S.A., Denver, Colo. (Assoc.)

George H. Musselman, M.D., Chicago, Ill., Medical Director, The Peoples Gas Light and Coke Company

Edgar H. Myers, M.D., South Bend, Ind. (Assoc.)

Philip C. Pack, A.B., Ann Arbor, Mich., Allied with Physical Education (Assoc.)

J. W. Payne, M.D., Willow-Wood, O., Health Commissioner

Charles W. Pemberton, M.D., Houston, Tex., Supervisor of Hygiene, Public Schools

Zula L. Powell, R.N., Fort Worth, Tex., Executive Secretary, Fort Worth-Tarrant County Tuberculosis Society

William T. Pratt, M.D., Rockville, Md., Deputy State Health Officer

Quaker Oats Company, Chicago, Ill., Sustaining Member

Willimina M. Rayne, New York, N. Y., Assistant to Executive Secretary, American Public Health Association

George A. Russell, M.D., Boonville, Mo., Health Officer

Evelyn C. Schmidt, Chicago, Ill., Director, Bureau of Dental Health Education, American Dental Association

Beatrice Short, R.N., New York, N. Y., Assistant Director, National Organization for Public Health Nursing

A. C. Stokes, M.D., Omaha, Neb., Medical Director, Guarantee Fund Life Association Company (Assoc.)

Kathryn R. Tirrell, Bridgeport, Conn., Director, Division of Laboratories, Health Department

Fannie M. Titsworth, Nashville, Tenn., Student at Peabody College (Assoc.)

Daisy B. Treen, B.A., Boston, Mass., Director of School Luncheons

William Turnbull, M.D., Winnipeg, Can., Medical Health Officer

William H. F. Warthen, M.D., Baltimore, Md., Director, Bureau of Child Welfare, City Health Department

J. W. Weber, M.D., Woodsfield, O., County Health Commissioner

Rollin D. Worden, M.D., Ravenna, O., County Health Commissioner

DECEASED MEMBERS AND FELLOWS

W. E. Musgrave, M.D., San Francisco, Calif.

S. H. Rantz, M.D., Placerville, Calif.

Dr. Joas Amarante, Rio de Janeiro, Brazil, S. A.

S. Weingrad, M.D., Mountaindale, N. Y.

William Morris, Roselle Board of Health, Roselle, N. J.

Joseph C. Elfers, M.D., Commissioner of Public Health, Sheboygan, Wis.

Walter B. James, M.D., New York, N. Y.

T. Howard Barnes, New York, N. Y.

H. L. Leete, R.N., Brooklyn. Childrens Aid Society, Wave Crest Convalescent Home, Far Rockaway, N. Y.

Charles E. Marshall, Amherst, Mass.

Dr. J. Y. Porter, City Health Officer, Key West, Fla.

PUBLIC HEALTH ADMINISTRATION

HENRY F. VAUGHAN, D. P. H.

Diphtheria Death at Auburn—On January 9, Auburn experienced its first death from diphtheria since March 9, 1924. The victim was a 6 year old child who, according to the report received by the State Health Department, had not been immunized against diphtheria with toxin-antitoxin. A physician was not called early in the disease, and the antitoxin was not given until 2 days after the first call. Two younger children in the family were given protective doses of antitoxin, but two older ones who had been immunized some time before with toxin-antitoxin were not given any. All four remained well.—*Health News*, New York State Department of Health: V:13 (Jan. 23), 1928.

Potency of Toxin-Antitoxin—In spite of the practice of giving 3 doses of toxin-antitoxin to all new nurses at the Cook County Hospital there occurred during the period of approximately 18 months from January, 1926, to July 8, 1927, 29 cases of diphtheria. Of this number 10 nurses had had not less than 3 doses of toxin-antitoxin within 2 years and prior to 3 months before onset. Four nurses had received 3 doses of toxin-antitoxin within 3 months of time of onset. Twelve gave a history of having had no toxin-antitoxin or previous diphtheria. In 3 instances no data were available. It will be observed that there were 12 cases among those who had not had toxin-antitoxin, and 14 cases among those who gave a history of having had some toxin-antitoxin. The unprotected group consisted of 175 individuals, and the protected group included only 64. It is, therefore, evident that the percentage of those who contracted diphtheria was greater in the protected than in the unprotected.

These facts led to the inauguration of tests for potency of the toxin-antitoxin preparation. Wide variations were found in the potency of commercial preparations now on the market, and in some instances there was even considerable difference among the lots made by the same manufacturer. The method used to determine potency was that adopted by the Hygienic Laboratory of the U. S. Public Health Service. The author recommends that when large numbers of toxin-antitoxin immunizations are to be done, it is advisable to make tests for potency on the particular lot of toxin-antitoxin to be used before work is undertaken.—Paul S. Rhoads, Commercial Preparations of Diphtheria Toxin-Antitoxin, *J. A. M. A.*, 90:254 (Jan. 28), 1928.

Record Forms—The Committee on Administrative Practice of the American Public Health Association has published for experimental use, 4 sets of record forms. These are for communicable diseases, laboratory, school medical inspection, and public health nursing. The nursing forms have been worked out by the National Organization for Public Health Nursing. In designing these forms the committee had in mind not only the desirability of keeping adequate records which would serve local needs and assist the health officer of the smaller community who feels the need of rigid economy, but which would, likewise, enable the administrator to accumulate figures which are essential to the application of the *Appraisal Form* as a measuring stick of the effectiveness of the communal health program.

The fact is appreciated that it will be quite impossible for a single suggested system of record keeping to be applied universally. Lack of uniformity in the laws of the various states, and in the activities and methods followed by health departments in the reporting and supervision of cases of communicable disease makes this impracticable. There should, however, be a record of all immunization treatments for diphtheria, typhoid fever, smallpox, etc.; epidemiological records for securing and preserving the essential facts regarding the major communicable diseases which have been reported and entry made on a suitable report card. In smaller cities and towns these are the only communicable disease records needed for the diseases of major importance. In the larger cities there should be added as a minimum a case record card, inspector's or placarder's record, nurse's record, and a summary record.

The various types of record forms used in public health laboratories may be conveniently listed under the following heads:

1. Accession Sheet, for recording the receipt of specimens in the laboratory
2. Identification Slip, for physicians or others submitting specimens
3. Examination Record, for an exact statement of all work performed on each specimen together with the result of such examinations
4. Report Form, for written reports
5. Summary Sheet, for showing the amount and kind of work done in the laboratory
6. Miscellaneous Record Slips, for convenience of the laboratory in keeping departmental records, record of parts of work, etc.

A form for recording health facts about individual school children over a period of years is also presented. It is prepared for schools in which the teacher has no professional assistance in caring for the health of her pupils. It is not meant to offer an alternative or a substitute to professional health science. The purpose is to meet the situation in the best manner that is possible under existing circumstances wherein the teacher, for the most part, has no professional assistance. The committee feels that there are 4 main series of facts which should prove useful: (1) record of communicable diseases experienced, (2) record of immunization, (3) record of obvious physical defects, and (4) record of absences by cause.

The public health nursing record system includes:

1. Index Card
2. Family Folder
3. Maternity Service
4. Health Supervision Service
5. Morbidity Service
6. Extra Data
7. Nurse's Daily Report
8. School Service

The committee's report will be found in a publication of the Association consisting of 106 pages. Copies can be secured from the Association office at the rate of fifty cents each.

Cincinnati Goiter Resurvey—During the 1923–1924 school session a thyroid survey was made of 47,493 children in the elementary schools of Cincinnati. The first survey included 23,710 boys of whom 26.6 per cent showed thyroid enlargements, and 23,783 girls among whom 39.8 per cent showed thyroid enlargements. In 1927 the resurvey included 12,722 boys and 12,818 girls. In the resurvey the percentage of thyroid enlargements among the boys was 22.5, and among the girls 39.3. In general it may be said that the resurvey included the same children who were examined in 1923–1924. The author concludes that there is a lessened incidence of the disease and a considerable reduction in the number of goiters of moderate and marked degree, although the aggregate incidence of endemic goiter in 1927 was only slightly less than in 1924. It is

believed that iodized salt was a factor in the slight reduction of goiter, and other prophylactics may have exerted a favorable influence.—Robert Olesen, A Resurvey of Endemic Thyroid Enlargement in Cincinnati; *Pub. Health Rep.*, 43: 1113 (Jan. 20), 1928.

Measles In Institutions—Deaths from measles in institutions for children and for mental defectives have been responsible for from 3 to 26 per cent of the annual mortality from this cause in New York State, exclusive of New York City.

The average for the 8 years 1915–1922 was 10 per cent. Outbreaks accompanied by a large number of deaths have occurred only in institutions caring for children under 2 years of age and in institutions for mental defectives. The author describes in detail the restrictive measures employed for the prevention and control of measles in institutions during the year 1923, there being 45 distinct outbreaks in 40 institutions with a total of 945 cases and 51 deaths. He concludes that convalescent serum will favorably influence the mortality if administered during incubation period, but admits that its use in the institutions was a decided disappointment. Delayed notification and difficulty in transportation detracted materially from its practical value as well as the difficulty of maintaining a reserve supply sufficient to meet the needs of a large institution.—Edward S. Godfrey, Jr., Measles in Institutions for Children, *J. Prev. Med.*, 2:1 (Jan.), 1928.

LABORATORY

C. C. YOUNG

DELETERIOUS EFFECTS FROM SERUM INJECTIONS

W. H. PARK, M.D., FELLOW A. P. H. A.

Director, Department of Health Laboratories, New York, N. Y.

BEFORE considering these effects individually it will be well to review briefly our present knowledge as to the reason of the development of the reactions in susceptible individuals.

Hypersensitiveness in man may be observed after both the enteral and parenteral introduction of many and varied substances. These inducing substances may be divided into two groups, antigenic and non-antigenic, viz: those which stimulate and those which do not stimulate the production of demonstrable antibodies. The degree of response to such substances is largely personal idiosyncrasy and the symptoms, however diverse the agent, have a great deal of similarity. Coca has suggested that the term allergy, introduced by von Pirquet, be limited to describe these individual peculiarities.

Because of the ease with which experimental animals may be rendered sensitive or anaphylactic, there has developed a general fear of a fatal outcome following injections of antitoxins and antiserums made some weeks or years after a previous injection. There is, however, direct evidence that man is much less liable to be similarly sensitized. In this connection it should be noted that attempts to render monkeys anaphylactic have failed. Longcope believes that the high degree of susceptibility in

some people with spontaneous sensitiveness, the multiplicity or lack of specificity of sensitivity and the distinct tendency to occur in families differentiates these individuals from the artificially sensitized. Man may be sensitized in a way as manifested by the accelerated or immediate reactions of serum sickness, the production of chills and fever by intravenous injections, or by the development of an increased skin sensitivity after serum administration.

Collapse or death has occasionally followed the second injection of antitoxin or antiserum, and seemingly is more likely to occur after intravenous or intraspinal injection where an interval of five days or more has elapsed after the first injection. These occurrences suggest that some individuals may actually be rendered anaphylactic. On the other hand, different lots of antitoxin and antiserum behave distinctly differently, and individuals of known sensitivity do not necessarily always react similarly to the substance to which they are sensitive. The danger of second injections to an individual is probably only slightly greater than that of first injections.

SERUM REACTIONS

The untoward symptoms elicited in man by the introduction of serums with or without antitoxins may be divided into those following the initial injection and those following the second or later injections. These reactions have nothing to do with the antibody content of the injected serum.

Following the first injection three types of reactions may be noted: (a) most frequently, a symptom-complex called "serum sickness"; (b) very rarely, collapse, with or without fatal outcome; (c) equally rarely, local necrosis. Each of these forms of response may follow the second or later injection.

Collapse or Death—This rare accident has been noted usually after the first injection. The symptoms develop quickly after the administration of the serum. In about 1 to 20,000 persons receiving primary injections of serum alarming symptoms develop; in about 1 to 50,000, death results. The symptoms are those of extreme dyspnea and collapse. The dose which will give alarming symptoms or even result fatally may be very small. Kerley reports a case of known hypersensitiveness where the dose was gradually increased until 4 minims were given; this resulted in alarming shock. It is probable that the greater frequency of deaths after first injections was because the number of first injections was so much larger. The individuals showing this type of reaction are commonly those subject to "hay fever or asthma" developing attacks especially in the neighborhood of horses. Children having a status lymphaticus are prone to develop collapse or die. Every precaution should be taken in giving antitoxins or antiserums to such cases or to those subject to asthma.

Chills—A chill more or less severe is observed in about 10 per cent of the cases after the intravenous injection of refined antiserum and about 20 to 60 per cent of the cases after unrefined antiserum, even when injections are given very slowly and the material warmed to the body temperature. In the Willard Parker Hospital the frequent administration of antitoxin by the intravenous method has revealed that this probably depends on some special form of the protein or lipoid. With the best product of refined antitoxin globulins less than 1 per cent of intravenous injections produce a chill. There is considerable difference in this respect between different preparations of both refined and unrefined serum.

It should be emphasized that the development of sudden collapse is the condition to fear and prevent. Serum

sickness is not fatal in itself, however alarming in appearance and uncomfortable the condition may be; even where two or even three successive waves of rash and edema ensue. This condition cannot be prevented except by improvements in concentration methods, which will both modify and lower the content of protein substances in antitoxin and other antibody preparations. The giving of divided doses does not materially influence the subsequent development of serum sickness as roughly the total quantity given is the determining factor in individuals of equal sensitiveness and with the same preparation of antitoxin.

Serum Sickness—The incidence of this type of reaction varies widely in different series of cases, being from 10 to 60 per cent or more according to the preparation of serum used. The size of dose will influence to some degree the percentage incidence. Because of the lower protein content and also because of the heating, the concentrated globulin preparations of antitoxin cause a relatively low incidence. Following the first injection of serum or antitoxin there is an incubation period varying from 3 hours to 24 days. More commonly the period ranges from 3 to 12 days. The symptoms are primarily a skin eruption, edema, slight albuminuria, variable both in incidence and in degree, enlargement of the lymph nodes with pain and tenderness and pain in the joints. The eruption is very variable in character. A local eruption usually appears earlier than the general eruption. On the second or later injections the period of incubation may be absent or shortened, "immediate or accelerated reaction," although this does not always occur. This accelerated reaction is not more serious than the ordinary serum sickness. Some samples of unrefined serum uniformly cause skin eruptions (scarlatinaform) earlier than others. The longer incubation periods are more frequently followed by urticarial rashes. It would seem from this that there were different reaction-inducing substances in serum or antitoxin.

Severe Local Reactions—In very rare instances the primary injection of antitoxin leads to local necrosis. Although this occurs with extreme infrequency, it should be a warning against injection under the breasts. When repeated injections are given, a second or later subcutaneous injection somewhat more frequently results in a sharp local reaction which may go on to necrosis. This may occur not only with serum but also with rabies vaccine. The resemblance of this form of reaction to the Arthus's phenomenon in sensitized rabbits is marked. The necrosis is not due to bacterial contamination, but the necrotic area may become infected and serious or fatal results ensue.

TESTS USED TO INDICATE THE PROBABILITY OF SERUM REACTIONS

While it is always advisable, in general it is not expedient, to test the sensitivity of every case before the administration of antitoxins or antiserums. Careful inquiry should be made as to known allergy, such as hay fever, asthma or food idiosyncrasies. Those giving a definite or suspicious history may then be tested by the intracutaneous injection of about 0.1 c.c. of serum, or antitoxin diluted 1 to 10, or the instillation of a drop of the undiluted serum, or a 1 to 5 dilution in the eye.

It is important that epinephrine be immediately available when doing an ophthalmic test since in rare instances a severe reaction has occurred. The instillation of epinephrine will check the progress of the reaction. Of the two tests, the latter is the more reliable index of the probability of a serious general reaction, but because of crying it is somewhat difficult to use accurately in young children, both because it is partly washed out and because of congestion of the conjunctiva in the other eye.

Untoward results may occur in persons not giving a positive test. The presence of skin sensitiveness, as shown by the prompt development within 20 minutes of a definite wheal at the site of intracutaneous injection which is considerably larger than the original wheal made by the injection, usually indicates that serum sickness with local or general rash will develop, and more quickly than usual. The late area of hyperaemia which develops at the site of the injection is of little if any significance. Children which show this late reaction from an intradermal injection of the serum from one horse often will not react to the serum from another horse. The rare cases with symptoms of shock with or without death are more likely to occur than in those not skin sensitive. The eye test seems to be even a better index of the probability of a serious reaction.

In those where because of history or preliminary test or both there is reason to fear a general reaction, about 0.05 c.c. of serum or antitoxin may be given subcutaneously, and then gradually increased-sized doses, such as 0.1 to 0.2 c.c., given every 15 minutes until a slight reaction indicates that the tolerance of the patient is reached or sufficient serum is given. Should an intraspinous or intravenous injection be required, it becomes a problem of comparative dangers of withholding the serum or risking the reaction. Several preliminary subcutaneous injections may be tried (as above) before attempting intravenous injection, giving then only a very small amount, pausing for some minutes, and then giving the remainder very, very slowly. Dilution with saline solution wherever possible is an aid in this regard.

Even with all these precautions a severe reaction or even a fatal result may occur. Thus, a young woman, who had received 80 c.c. of antistreptococcic serum intramuscularly, required at the end of 3 weeks an intravenous injection. She was given at short intervals 0.5, 1, 2 and 4 c.c. of serum subcutaneously. No appreciable local or general reaction occurred. An intravenous injection was then given. When the amount reached 10 c.c., while it was being administered very slowly, she complained of premonitory symptoms of beginning shock. The injection was immediately suspended, but the symptoms increased and death soon resulted. The first injection of serum, although it produced no immediate effect, did cause serum sickness on the 8th day. Such cases are fortunately rare.

DESENSITIZATION TO SERUM

Instances are noted with some frequency where first injections have caused reactions and following injections given several hours or even a day later have produced little or none. This would seem to indicate a desensitization. Different batches of bactericidal or antitoxic serum will vary widely in their rash and temperature producing qualities, and this may have been a factor in the development or non-development of symptoms. The administration of small doses of serum, prior to a first large injection or prior to subsequent injections of those known to be sensitive, has not the regularity of desensitization noted in experimental animals. Divided doses may fail to give a reaction or repeated small doses may apparently induce a tolerance, but this is no proof that we are inducing the mechanism of desensitization so uniformly producible in experimental animals. In persons suffering from lobar pneumonia where frequent injections of antiserum are given intravenously the first injection of serum frequently produces a chill. Subsequent injections of the same dose rarely produce one, but if the dose is markedly increased a second chill frequently follows. Even the same amount

of a different preparation is more apt to produce a chill.

METHODS OF ELIMINATING THE REACTING SUBSTANCES FROM ANTISERUMS

Concentration methods (globulin separation) have had effect in reducing the incidence of rashes. Heating the antiserums to 56° C. before concentration is of distinct value; likewise the preliminary saturation with sodium chloride and the use of the clear filtrate for the subsequent steps in the ammonium sulphate method of purification. Aging of antiserums or of globulin preparations is of distinct value. Crystal clear products are less likely to cause chills and the aging before filtration is more likely to yield a product which will remain clear. Starving of horses prior to bleeding does not seem to influence the content of reacting substances. Keyes and Carey advise the addition of calcium chloride and cephalin to remove the residual fibrin-forming substances still remaining after clotting. They believe that chills may be prevented in this way. In a little preliminary work we have not been able to remove the chill-producing substance by utilizing what we believed to be their method.

TREATMENT OF DEVELOPED SHOCK

Hypodermic injection of epinephrine or atropine will usually relieve the less severe attacks. In extreme collapse artificial respiration may be tried.

EFFECT OF THE SERUM IN TOXIN-ANTITOXIN IN SENSITIZING HUMAN BEINGS TO LATER INJECTIONS OF SERUM

Let us first approach this subject from the experimental side. It has long been known that minute quantities of serum will sensitize guinea pigs so that they will show some reaction after a delay of several weeks to later doses of serum. It is not usually remembered, however, that these small doses frequently do not sensitize guinea pigs to the extent that any appreciable reaction follows from large intracardial injections of serum. Recently we have given a number of guinea pigs several times the proportional amount of serum which human beings would get from toxin-antitoxin and none of these guinea pigs have died from 1 c.c. of serum injected intracardially. Several showed no symptoms at all; others had slight spasmodic contractions, scratched their nose and showed evidences of slight anaphylactic shock. They all made good recoveries.

Further it should be remembered as already stated, that the guinea pig is far more susceptible than other animals and so probably far more so than man. If we turn to skin reactions, we find as first pointed out by Hooker that after intracutaneous injections of 0.1 c.c. of a 1 per cent horse serum and 3 injections of the old toxin-antitoxin mixture, that these persons showed a year later a marked increase in the number which reacted to a second intracutaneous serum test.

It should be noted that not only did Hooker use a preliminary injection of serum which contained more serum than the 3 injections of the present toxin-antitoxin mixture, but he also used the old preparation of toxin-antitoxin which contained thirty times as much serum as the present mixture. Repeating his tests on children that had not received a previous intracutaneous injection, I found that there was only a moderate increase in the percentage of skin reactions among those who had received toxin-antitoxin and that none of these were extensive reactions.

From long experience in using preliminary intracutaneous tests to discover those who might show anaphylactic shock, we have learned that only those skin reactions which are extensive suggest the probability of anaphylactic shock or severe accelerated reactions. Those that show minor skin reactions as well as those that show no skin reactions

may develop anaphylactic shock, but do so less frequently. Then we have the final test as to whether a given number of persons who have received 3 injections of the present toxin-antitoxin mixtures show more accelerated reactions or serious cases of serum sickness or true anaphylactic shock or necrosis than those who have not received these injections.

I have had the opportunity of making a comparison in more than 100 individuals who had received toxin-antitoxin and in more than 100 individuals who have not received toxin-antitoxin. The total number of children was obtained by combining several different tests on different groups. In my experience there was no appreciable difference in the reactions following serum injections in those who had toxin-antitoxin and in those who had not. If isolated cases in which marked reactions occur which happen in those who had toxin-antitoxin previously are reported, it is misleading because similar cases could be reported in those which have not received such injections. It is only by comparing the two lots that accurate information can be obtained.

A striking instance of this was the recently published case of necrosis in a nurse following a second injection of antitoxin which followed ten days after the first injection. The caption over this report was gangrene following an injection of serum in a case which had previously received toxin-antitoxin. We know that an injection of serum following another given 10 days previously not infrequently is followed by a reaction, while the fact that the first injection of serum gave no reaction definitely rules out the toxin-antitoxin given a year previously as being in any way responsible.

There was recently reported to me the case of a young girl who nearly died after a dose of scarlet fever antitoxin. She had not had toxin-antitoxin or any previous serum injection. If she had had, it would have been considered as the predisposing cause.

From my own observations I am not at all worried by the slight degree of skin sensitization which may be produced by toxin-antitoxin. Fortunately, if anyone is worried we can turn to goat toxin-antitoxin or to toxoid. These preparations when they are properly made and when they have successfully passed tests for immunizing potency are equal in value to toxin-horse-antitoxin. This we are doing in New York and probably this change will in time become general.

VITAL STATISTICS

LOUIS I. DUBLIN, PH.D.

The Appendicitis Record of 1926—The mortality from appendicitis in the registration area of the United States has increased steadily since 1900, when there were 9.7 deaths per 100,000 to 11.4 in 1910, 13.4 in 1920 and 14.9 in 1924. The rate has risen much more slowly in England and Wales from 6.7 in 1915 to only 7.4 in 1925. Since the mortality from normal operations should not exceed 2 per cent, early operations would seem to be of utmost importance in lessening our mortality from this disease.

The urban death rate in this country has increased from 13.3 in 1910 to 15.6 in 1920, and 17.3 in 1926. In 22 cities of between 50,000 and 375,000 population the average rate was 15.7. Several of these cities reported no deaths, but Little Rock, Ark., had the exceptionally high rate of 61.9. In 116 other cities of more than 20,000 population the average death rate was 17.0 in 1925 and 17.3 in 1926. For disease increase in 65 of these cities

the lowest rate was 0.4 in Indianapolis, Ind., in 1926. The cities with the highest rates were Schenectady, N. Y., 30.1, Denver, Colo., 30.9, Knoxville, Tenn., 31.4, Columbus, O., 32.6, Spokane, Wash., 33.0, Nashville, Tenn., 33.6, Springfield, Ill., 35.5, Petersburg, Va., 35.7, Sacramento, Calif., 36.8, Salem, Mass., 39.6 and Lincoln, Neb., 46.8.—Frederick L. Hoffman. *Spectator*. 120: 11, 29–30. (Jan. 5), 1928.

Vital Statistics of Toronto, Ont., 1927—A review of the vital statistics for the past year shows the general mortality rate for Toronto to be 11.0 per 1,000 of population. This rate is slightly lower than in 1926, and a shade higher than the average annual death rate of the past 5 years, which is 10.7. Some idea of the progress that has been made can be gained when one realizes that the death rate 18 years ago was 15.3. The birth rate for the city, which has been steadily decreasing from the highest rate recorded, 30.9 in 1913, the year immediately preceding the Great War, shows a slight increase over the lowest rate on record, 21.3, a year ago. The rate this year is 21.7, and represents a total of 12,340 live births that were registered.

An infant rate of 158.5 per 1,000 live births (corrected) in 1909 has been lowered by preventive measures, to a rate of 58.8 in 1927, the lowest rate for the city recorded. This is a reduction of almost 63 per cent. The number of infant deaths registered in 1927 was 853, compared with 868 a year ago. The chief cause of death among infants was prematurity, which shows a slight increase over the figure of 1926. An increase is shown this year in gastrointestinal diseases under 1 year, 93 such deaths being registered. In 1913 over 500 deaths occurred from this cause. Decreases are shown in the number of infant deaths from pneumonia, congenital debility, tuberculosis and acute communicable diseases, compared with 1926.

The number of deaths from all forms of tuberculosis in the past year was 351; in 1926 there were 329 deaths registered. The mortality rate is 61.6 per 100,000 population, slightly in excess of last year. The reduction made in the tuberculosis death rate has been remarkable, when we compare the rate of 130 in 1910 to the lowest rate on record, 59.0 in 1926, a decrease of almost 55 per cent. The so-called degenerative diseases, organic heart disease, cancer, diseases of the arteries, cerebral hemorrhage (apoplexy), and nephritis (Bright's disease), accounted for approximately 40 per cent of all deaths registered. An increase is shown in all these diseases compared with a year ago, with the exception of nephritis. Fewer deaths were registered this year from pneumonia and influenza. A decided increase has been shown in the number of cases reported to the Quaratine Division of acute communicable diseases, with the exception of whooping cough. Increased mortality, however, is only shown in scarlet fever and diphtheria. Six deaths were due to typhoid fever, compared with 8 a year ago. One death was registered from smallpox, the first since March, 1924. Ten deaths were due to measles, a decrease from a year ago of 2. Twenty deaths from whooping cough, a decrease of 17. Diphtheria accounted for a total of 112 deaths, compared with 89 in 1926.—Dept. of Public Health, Toronto. *Monthly Report*. p. 1–2 (Dec.), 1927.

Vital Statistics in France—The Health Organization of the League of Nations has issued a handbook which deals with the procedure followed in gathering the official vital statistics of the French Republic. The census is taken quinquennially and is planned,

first, to enumerate the legal population for purposes of government and taxation and, second, to ascertain specific data of all persons. Since 1896 the alternate censuses have concentrated on civil condition and occupation, but in 1921 the census included both. The census agents are appointed by the mayors of the communes and are each responsible for a district containing from 100 to 200 persons.

Births of living children must be declared to the registrar within 3 days by the father, doctor or some other appropriate person under penalty of fine or imprisonment. Stillbirths must also be declared and there are special provisions for the recognition of illegitimate children by the parents. Deaths must be declared to the registrar by a relative of the deceased or other appropriate person. Declaration is commonly made within 24 hours, although no time limit is prescribed. The body must in all cases be viewed by an authorized verifier and an "acte de deces" drawn up by the mayor of the commune or his deputy. The acte contains no information as to cause of death, but the registrar in most communes submits to the mayor a special bulletin which among other facts gives the cause of death. But since the medical practitioner in attendance is not required to give a certificate as to cause of death the official records of the verifier vary in reliability. These bulletins are transmitted by the mayor through the prefect of the department to the General Statistical Office where they are published in the *Statistique du Movement de la Population.*

There are 18 infectious diseases which are compulsorily notifiable and 9 others which are optional. Notification must be made immediately and in duplicate by the medical practitioner, public health officer or midwife to the prefect of the department and the mayor of the commune. In order to insure professional secrecy the disease is referred to by number only. A register of notifications is kept by the prefect who sends a monthly summary to the Department of Health of the Ministry of Labor, and a general statement based on the summaries is published annually. A bacteriological laboratory is provided free of charge for medical practitioners in most departments and large towns.

Disinfection, free of charge, to poor persons and on a sliding scale of expense to others, is absolutely required in compulsorily notifiable diseases. Vaccination and revaccination are compulsory. There are 500 dispensaries and 54 sanatoriums with 7,000 beds for tuberculosis, one of the optionally notifiable diseases. For venereal disease, which is not notifiable, there are dispensaries and special facilities for pregnant women, nursing mothers, soldiers, sailors, prisoners and prostitutes.—*Brit. M. J.*, 2:1198–1199. (Dec. 24), 1927.

Vital Statistics of Ghent, Belgium, 1926—The report of the Municipal Bureau of Health of Ghent for the year 1926 gives the population of the city as 162,641. There were 2,356 births during the year as compared with 2,471 in 1925, the rates being 14.41 per 1,000 population in 1926, and 15.08 per 1,000 in 1925. There were 2,078 deaths in 1926 as compared with 2,123 in 1925. Deaths among children under 1 year were 213 in 1926, as compared with 260 in 1925.

The principal causes of death in 1926 were cancer, 226 deaths, and pulmonary tuberculosis, 116. Forty-eight cases of typhoid fever were reported with 4 deaths; 51 cases of scarlet fever with no death; 44 cases of diphtheria with 2 deaths; and there were 6 deaths from whooping cough. One case of puerperal fever and one of cerebrospinal meningitis were reported, but there were no deaths from these diseases. It is said that smallpox has not appeared in Ghent for a number of years. Forty-nine cases of

gonorrhea and 2 of syphilis were discovered and segregated.—*Pub. Health Rep.*, 42:3099 (Dec. 16), 1927.

Vital Statistics of 67 American Cities, 1927—The general death rate for these cities in 1927 was 12.3 as compared with 13.2 in 1926. The three highest death rates occurred in cities having large negro populations. Memphis led with a rate of 19.3; next came New Orleans, 18.7; and Nashville, 17.5. The lowest rates were 9.2 in Somerville, and 9.3 in Yonkers. The highest rates in 1926 were found in the same cities as in 1927, Memphis 20.0, Nashville 19.7 and New Orleans 18.9. The lowest rates were in Seattle, 9.7 and in Yonkers and Canton each with 10.4.

In 1927 the infant mortality rate was 62 and in 1926 it was 72 per 1,000 live births. The highest rates in 1927 were 87 in Lowell and 85 in New Orleans; in 1926 the highest rates were 107 in Richmond and 102 in New Bedford. The lowest rates in 1927 were 36 in St. Paul and 37 in Seattle, in 1926 they were 39 for Portland, Ore., and 46 in San Diego. *U. S. Weekly Health Index.* Summary for 75 cities, 1927.

Vital Statistics of Syracuse, N. Y., 1927—The general death rate in Syracuse for 1927 was 12.3 as compared with 13.3 for 1926. The infant mortality rate was 57.3 as against 69.2 in 1926. Of the 6 principal causes of death, only cancer and nephritis showed slight increases. The tuberculosis mortality rate of 59.0 was the lowest rate of any large cities in the United States. There were 584 deaths from heart disease in 1927, from cancer, 242, from pneumonia 206, from nephritis 195 and 169 from cerebral hemorrhage.

There were 14 deaths from measles, 3 each from diphtheria, scarlet fever and typhoid fever. These deaths from typhoid fever were traced to a typhoid carrier in the city. There were 168 deaths from violence in 1927 as against 176 in 1926. The total number of deaths from tuberculosis and all the acute infectious diseases, with the exception of pneumonia, was much less than those from violence.—Syracuse *Better Health* (Monthly) 2:2–3 (Jan.), 1928.

Statistics of Attendants at Birth in Pennsylvania—Hospital births comprised only 19 per cent of all births in Pennsylvania during 1926 but in Philadelphia 41 per cent took place in hospitals. Twenty per cent of native born mothers in the state went to hospitals for confinements, 36 per cent of colored mothers and 14 per cent of foreign mothers had hospital care. The high percentage of hospital confinements among colored women is partly explained by the fact that most colored people in Pennsylvania live in cities with easily accessible hospital facilities.

Seventy-four per cent of births occurred in the home of the mothers and were presumably attended by physicians while 7 per cent were attended by midwives. More than 60 per cent of the mothers attended by midwives were foreign born. Of all births among foreign born mothers 22 per cent were midwife births but only 4 per cent of native born white and colored mothers employed midwives. Midwife births were highest among those of Polish birth, and next among the Austro-Hungarians. The Irish, Italians and Germans employ midwives for from 10 to 20 per cent of the births. Russian and British mothers are rarely attended by midwives.

There were 4,681 illegitimate children born in Pennsylvania in 1926, amounting to 2.2 per cent of all births. Illegitimate births made up 9.5 per cent of all colored births, 2.7 per cent of the children of native born mothers and 0.6 per cent of children of foreign born mothers.—The Hurry Call, *Pennsylvania's Health.* 6:29–30 (Jan.-Feb.), 1928.

PUBLIC HEALTH ENGINEERING

ARTHUR P. MILLER, C.E.

SEWAGE SLUDGE*

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AFTER more than one-third of a century of practice of the art of sewage treatment in the United States, the disposal of sludge holds the center of the stage as a most troublesome and exasperating problem.

Sewage solids, deposited in a settling tank, and not properly digested before being withdrawn, are very apt to create a decided odor nuisance. If digestion has been satisfactory, but the sludge drawn from the tank has a high moisture content, then the problem of dewatering is presented inasmuch as this step must be taken ordinarily before final disposal can be made.

There have been three general means employed for the final disposal of sewage sludge; namely, (1) discharging it in deep water of a lake, sea or ocean where it will not create a physical nuisance or be otherwise objectionable; (2) spreading it upon farm land with the idea of utilizing any fertilizing value it may have; and (3) using it for making fills.

In every community where sewage treatment is practiced, there are citizens and public officials, who, because of their interest in public affairs, want to know why sewage sludge cannot be used as a fertilizer and possibly become a source of revenue.

No effort will be made in this paper to give a definite answer to this question. However, a better perspective of the problem and its limitations may result from a study of the results of 16 years of experience by the City of Columbus, O., in the recovery of salable products from another municipal waste, namely, garbage.

During the period from 1911 to 1926, both years included, 361,773 tons of green garbage were reduced, resulting in a recovery of 8.8 per cent of the original green garbage tonnage as tankage or fertilizer, and 2.5 per cent as grease. The total revenue from the sale of by-products was $1,367,679 and the total cost of operation ($1,183,040), interest on bonds ($198,450) and free water ($126,076), was $1,507,566.

The total revenue per capita per year was 36.8 cents, and the average cost of operation, interest and free water per capita per year was 40.6 cents, making the net cost per capita per year, not including depreciation, 3.8 cents.

The costs referred to above include the cost of transportation of the green garbage from a central loading station to the reduction works but do not include the collection cost.

If a proper depreciation charge were added, the average net cost per capita per year would be approximately 10 cents, and although this plant has not been a net producer of revenue, its operation has provided a very cheap method of garbage disposal.

A further study of this recovery

* Presented to the Public Health Engineering Section of the American Public Health Association, at the Fifty-sixth Annual Meeting at Cincinnati, O., October 18, 1927. (See Report of Committee on Disposal of Sewage and Industrial Wastes, *A. J. P. H.*, Feb., 1928, p. 199.)

process shows that of the total revenue for the 16-year period, 73.0 per cent was derived from the sale of grease, 24.5 per cent from the sale of tankage or fertilizer, and 2.5 per cent from other miscellaneous sales, such as hides, etc., and a still further analysis of the salable products shows that the contributing elements were approximately as follows:

	Per cent
Grease	73.0
Nitrogen	20.0
Phosphorus and potassium	4.5
Other products	2.5

The above data show that grease and nitrogen recovery accounted for 93.0 per cent of the revenue derived from the sale of the by-products of garbage reduction.

The average pounds of green garbage per capita per year for the 16-year period was 195, and of this amount 80 per cent is moisture and ash and 20 per cent combustible matter. Inasmuch as the combustible matter furnishes the grease and nitrogen which account for 93 per cent of the salable by-products, consequently the valuable recovery products are produced from 20 per cent of 195 lbs. or 39 lbs. of dry material per capita per year.

For purposes of comparison it will be assumed that average municipal sewage has 200 p.p.m. of suspended solids; that the entire amount is removed by the treatment process and recovered as sludge; that the sewage flow is 100 gals. per capita per day; and that 40 per cent of the total suspended solids are fixed, and 60 per cent volatile.

Under the above assumptions the combustible matter in sewage per capita per year would be 200 p.p.m. x 100 gals. per capita per day x 365 days x 8⅓ lbs. per gal. x 0.60 divided by 1,000,000, or 36½ lbs.; or in other words, on the basis of the assumed conditions, taken as average for municipal sewage, there is less dry combustible matter in sewage per capita per year than there is in garbage.

The above estimate of 36½ lbs. contemplates a complete recovery of the suspended solids, whereas very material losses will occur from at least three sources; namely, a portion disappearing as a result of digestive processes, another portion being unrecoverable because of its finely comminuted condition, and a third portion passing out with the final effluent of the works.

There is also a marked difference in the quality of the ether soluble material in sewage sludge and garbage. The unsaponifiable material in garbage grease is less than 3 per cent, and the grease from sewage sludge has been reported by one investigator to have an unsaponifiable content of from 7 to 14 per cent, and others have placed it as high as 20 per cent.

The average amount of grease recovered from garbage at Columbus for a period of 16 years is 4.8 lbs. per capita per year, and the average selling price is 5.65 cents per lb. The average amount of grease in sewage is somewhat speculative inasmuch as fat determinations are not a part of the analytical routine in sewage works laboratories. During the experimental investigations in Columbus in 1904 and 1905, fat determinations were a part of the routine analysis and the average value secured at that time indicated a fat content of about 7½ lbs per capita per year; however, the hardness of the city water at that time was about three times the present hardness, also the use of automobiles had barely started at that time.

About ten years ago, 15½ tons of air dried sewage sludge were put through the drying process at the garbage reductions works with the results shown on the next page.

The composition of the dryer sludge was, ammonia 1.86 per cent, potash 0.11 per cent, tri-calcium phosphate 2.72 per cent; and the selling price of this dryer sludge at present-day prices would be $3.88 per ton.

Total weight of air dried sludge	15.5 tons
Moisture in air dried sludge	24.8 per cent
Total weight of dryer sludge	6.5 tons
Moisture in dryer sludge	3.4 per cent
Total loss in drying treatment	9.0 tons
Moisture loss in drying treatment	3.6 tons
Loss of other constituents	5.4 tons

Per cent dry recovered sludge was of original air dried sludge 42.0.

It is probable that the method employed to dry this sludge caused a material loss of nitrogen and was not the best way of doing it.

The per ton selling price of garbage tankage for the 16-year period has been as follows: average $10.45, maximum $22.65, minimum $6.96. The prices received in recent years for garbage tankage are as follows: 1924, $9.35; 1925, $8.86, and 1926, $8.20.

Columbus has a present population of approximately 295,000, with a wide diversity of industries, none of which produces wastes unusual in quality or particularly large in quantity. The sewage of the city is probably of average domestic industrial composition.

In conclusion it would seem that, under the conditions just reviewed, an attempt to recover valuable products from sewage sludge is not a promising undertaking and that the proper criterion is in finding the cheapest and most satisfactory means for its final disposal.

Study of the Waste Water of Paper Mills—The author reports a number of studies and experiments made by himself on waste waters from paper mills in an effort to determine the significance of this particular industrial waste as affecting the health of the population in certain areas, its effect on fish life in streams into which it is discharged, and its possible application to soil as a fertilizer-carrying irrigation water.

Three kinds of waste were experimented with which the author designates as I, II, and III as follows: (I) Straw and lime, or paper board refuse; (II) manila hemp, Broussonetia Kashinoki, Sieb and other materials used in the making of Japanese papers; (III) wastes in which above two are combined.

Interesting charts and tabulations of the detail technic are given covering each type of experimental study and the author's conclusions are given below:

Effects of Waste Water on

1. Pathogens—This experiment was limited to a study of the effect of paper mill waste on *B. typhosus*, cholera vibrio and dysentery bacilli. No apparent germicidal power was noted in fluids I and III, but fluid II destroyed the cholera vibrio in 8 hours, typhoid bacilli in 4 to 8 hours and dysentery bacilli in 2 to 4 hours when used in its original form (without dilution). Diluted to one-half strength cholera spirilla were destroyed in 8 to 18 hours, typhoid bacilli in 8 hours and dysentery bacilli in 4 to 8 hours by fluid II.

2. Fishes—This series of experiments indicates that "fish die in the waste water when the latter decomposes to degeneration"; it does not destroy them in a short time; and "that the fish which lived long in such waste water acquired some peculiar odor and was unfit for eating."

3. Animals—Rabbits were used as the experimental animals and it is interesting to note that the animals fed with fluid I and fluid II showed a gain in weight of from 31 to 78 g. more than control animals which were caused to drink "plain water."

4. Plants—The author assumes that paper mill wastes should be an excellent medium for the fertilization of growing crops when used for irrigating land since it contains the essential elements of plant food and is "almost free from injurious elements."

Unfortunately, his experimental rice field was attacked and destroyed by rats

during the course of his experiment and the continuation of this study is left to the Prefectural Experimental Firm under the guidance of which the Seihl Paper Mill is now conducting similar experiments.

Experiments on Decolorization of Waste Water—A considerable number of experiments were conducted with different chemical agents and varying dilutions of the waste in order to determine the most effective method of accomplishing decolorization. Local inhabitants appear to object more strenuously to the filthy appearance of water polluted by such waste than to its actual chemical composition. The author concludes that "decolorization by means of sodium bisulphite and dilute sulfuric acid cannot be thoroughly effective."

Experimental Dilution of Waste Water—Dilutions of paper mill waste of varying strengths from 1:100 to 1:600 were made of fluids I, II and III and the dilutions examined as to appearance, odor, reaction, and analyzed for the presence of sulfuric and nitric acids, ammonia, chlorine, lime and organic matter. These experiments are carefully tabulated.

The conclusion is that "said waste water becomes drinkable if diluted to 600 times with distilled water, and 700 times with water from the river Matsubara."

Course Taken in Decomposition of Waste Water—This series of experiments was made to determine the effects of dilution alone on the putrescibility of waste waters. It was observed that while the original fluid decomposed and changed color by the third day, 1:5 dilution on the 10th day and 1:10 on the 15th day, "It was also seen that in the progress of decomposition much depended on temperature and sunshine." A dilution of 1:20 never decomposes or changes, even in the month of August.

The Effect on Sanitation of the Districts along the River to Which the Waste Waters Flow In—(1) Mosquito breeding is increased and breeding season prolonged. (2) Fishing, swimming, and such recreations are interfered with or made impossible. River is changed from beautiful, clear stream to one of filthy, foul, malodorous character with its beauty spoiled. Fish are entirely destroyed. (3) A variety of gases are generated in the water. Air along the river bank contains 1 part per 3,000,000 of hydrogen sulfide. The foul odor varies according to the day, hour and place.

It is the author's opinion that some means should be devised for using paper mill waste for fertilizer unless it can have a dilution in the stream receiving it of at least 1 to 500.—Natsuhiko Watanabe. *J. Pub. Health Assn. of Japan*, 3:1 (July), 1927. Abstr. C. H. Kibbey.

Direct Microscopic Examination of Milk—The article describes detailed experiments by the authors to determine value of direct bacterial count of milk as evidence of its sanitary quality.

Ten c.c. samples were centrifuged, a smear on slides made of sediment and this defatted, fixed, clarified, stained and examined under X900 magnification. Comparisons of direct count results, with field examination of cows suffering from mastitis, showed close relation between the two.

Dilution tests of certified milk contaminated with milk from infected cows indicated that it could be detected in high dilution.

Examination of dairies and market milk was begun and the direct counts found to parallel the conditions of the cows and sanitary conditions of the dairy. This visible method roused the interest of the dairymen, secured their coöperation and resulted in improved relations between inspectors and dairymen.—LeRoy Forman and I. H. Shaw. *Health News*, N. J. State Dept. of Health, 12:143 (May), 1927. Abstr. J. R. Hoffert.

The Volga, Oka and Moskowa Rivers as Sources of Supply of Potable Water for the City of Moscow—The water supply of the city of Moscow comes from two places: the underground stream of Mytizchy provides 25,000 cu.m. per day, and 170,000 cu.m. per day are taken from the River Moskowa.

The population of Moscow being, according to the last census, over 2 million, the supply is only sufficient for the metropolitan area. It is estimated that, in 1950, 630,000 cu.m. will be required, and in 1933 that 300,000 cu.m. will be required to supply the environs of Moscow as well. The Moscowa cannot supply more than 260,000 cu.m. per day; so a commission was appointed to find other sources of supply. Two other rivers, the Volga and the Oka, were investigated. As the distance from these rivers was 100 km. they appeared impracticable for this purpose, a more practical solution seeming to be the impounding of the Moscowa to provide a constant supply and to lessen the risk of floods as well. Nevertheless, tests of the waters of the Volga and of the Oka were made, with recommendations as to their use. It was considered that because of the origin of the waters of the Moscowa, it would cause great trouble due to algal growth, and the necessary measures to provide a potable water if reservoirs were formed would be to withdraw the water at a certain depth, to withdraw a constant amount, to clean out the reservoirs with the surplus of the spring floods, to drain the marshes and low places before inundation, and to provide a sanitary zone around the edge of the impounded area. —S. N. Stroganoff and N. G. Zakharoff. Résumé of *Report of Communal Service of Moscow*, 1927 (Russian). 186 pp. Abstr. W. H. W. Komp.

Many Algae Growths that Annoy the Water Works Man—Fresh water algae are classified into three groups: (1) The red algae group which contains 17 varieties; (2) the green algae division which has 356 species; (3) blue green algae which numbers 232 plants. The odor produced by the various algae may be sweet, grassy, geranium-like, fishy or obnoxious. Algae must have CO_2, nitrogen and sunlight for their growth and development. The nitrogen may be obtained from the nitrates in the water. Copper sulfate is now widely used for the destruction of algae. Chlorine is also used in some places. Copper is probably not a true poison. Doses as high as 15 grains have been prescribed in medicine.

Algae	Lethal dose of copper sulfate p.p.m.	Lbs. of copper sulfate per m.g.
Synedra	0.20	1.7
Uroglena	0.50	4.2
Asterionella	0.10	0.8

Amounts of Copper in Well Known Foods

	Cu present as a metal	$CuSO_4$ p.p.m.
Almonds	36.8	145.0
Milk	1.6	6.3
Cucumbers	45.0	177.0
Potatoes	2.8	11.0
Strawberries	8.0	31.4

Lethal Doses to Fish

	$CuSO_4$ p.p.m.	$CuSO_4$ lbs. per m.g.
Trout	0.14	1.2
Carp	0.33	2.8
Pickerel	0.40	3.5
Goldfish	1.50	4.2
Perch	0.67	5.5
Bass	2.00	16.6

—Anon. *Water Works Eng.*, 80:1256 (Aug. 31), 1927. Abstr. Frank Raab.

INDUSTRIAL HYGIENE

EMERY R. HAYHURST, M.D., AND LEONARD GREENBURG, PH.D.

Spray Painting in Pennsylvania—This bulletin of 201 pages including tables, and a short bibliography covers the extensive investigation made by Henry Field Smyth, M.D., and his coworkers under the direction of Richard H. Lansburgh, Secretary of Labor and Industry, Pennsylvania. While the report is dated November 3, 1926, it came off the press late in 1927. Following a 3-page Foreword by Secretary Lansburgh which discusses the organization of the investigation, there follows a detailed description of the 233 plants visited; a report to the advisory committee divided into: Part I, Field Survey, comprising the first 128 pages; Part II, Chemical Engineering Work, to page 192. A special study upon the effect of butyl and amyl acetate vapor on guinea pigs, which arrived at the conclusion that the latter appeared to have no effect upon the pigs while the former is somewhat toxic, comprises a 4-page report.

Careful studies were made of air velocity, benzol, lead content of air, and suspended particles in the air. Urine analyses, blood findings, and a detailed discussion of symptoms of poisoning, are given. Carefully controlled laboratory experiments upon different concentrations of benzol in the air, and upon the accuracy of different methods of determination include the most reliable data which have yet appeared upon this subject. The summary and conclusions follow:

1. The purpose of the study was to determine whether there is a health hazard involved in the coating of surfaces with paint, varnish, lacquer, shellac, enamel, and similar materials by the spray method; and if such hazard is present, in what manner it is manifested and to what extent.

2. In the field survey 233 establishments were visited; 383 physical examinations were made; 168 air velocity measurements were taken; and air was sampled and determinations made for the presence of benzol (91 samples), total solvents (10 samples), lead (22 samples), and dust particles (26 samples).

3. No cases of marked ill health which could be attributed to the work of the individual examined, were found, although some histories to this effect were obtained.

Mild symptoms of benzol absorption were found in persons spraying lacquer, substitute shellac, and stain. Blood examinations showed specific changes, which, while not so far advanced as to produce definite symptoms, were of such character as to indicate the absorption of benzol in its early stages.

Evidences of slight lead absorption were found in some sprayers of lead, but no cases of acute lead poisoning were met.

In the sprayers of vitreous enamel and other siliceous materials, X-ray photographs of the chest showed, in a few instances, definite fibrosis, and in others, lesions suggestive of beginning fibrosis; these two groups comprising not quite one-third of the total number examined.

4. Exhaust ventilation was studied through laboratory determinations. In these, a commercial booth was used for the spraying of objects of dissimilar sizes and shapes with material of different but known benzol content under varying conditions.

5. The health hazards encountered in spray coating processes may be overcome by the use of materials of nontoxic and nonirritating character, by the use of materials in which these elements are reduced to a minimum, and by requiring that when the spraying process is used certain definite precautions must be observed. With this in mind the Department of Labor and Industry has formulated tentative regulations covering this subject which will be discussed at public hearings and which will then form the basis of the regulations adopted and enforced by the department.

6. As the composition of lacquers has not yet been standardized and as almost all lacquer makers are continually changing their formulae and attempting to use entirely new solvents, the effect of which upon the health is or may be unknown, we feel that the indicated pre-

cautions will be advisable even though benzol itself may be entirely eliminated.
—Pennsylvania Dept. of Labor and Industry, *Special Bulletin No. 16*, November 6, 1926.

Final Report of the Committee on Spray Coating—This bulletin of 53 pages includes numerous illustrations, tables, and extensive infolds bearing tables showing, for instance, the findings for lacquer sprayers, undercoat and paint sprayers, vitreous enamel sprayers on sheet metal, and on castings. The National Safety Council created a special committee with A. L. Watson as chairman, which appointed a spray coating committee of 23 members, with Professor C.-E. A. Winslow as chairman, the efforts dating back to October, 1925. On June 4, 1926, Henry Field Smyth, M.D., and his associates, who had just completed the Pennsylvania study (above referred to) was invited to undertake this investigation. The work was done in Detroit and Toledo, except that enameling plants in Mansfield and Cleveland were also visited and studied. The field work was completed in September, 1926. Altogether, 29 different plants (or groups of workers) were studied. Eighty-six air tests were made for benzol, 27 for lead, and 33 for silica. A total of 354 physical examinations were made, including 349 blood tests.

The present report considers the historical development of the problem, spray paint constituents for both interior and exterior work, benzol poisoning, lead poisoning, and silicosis as a spray coating hazard, and the protection of workers by various means, such as the use of masks or respirators and the efficiency of same, medical supervision, the prevention of fire hazard, and the elimination of injurious materials. Approximately 30 pages are given to appendices which discuss in detail the methods used and the clinical findings for benzol, lead, and silica exposed workers (by Henry Field Smyth, M.D.); and the efficiency of respirators which might be used with the dangerous substances mentioned (by S. H. Katz, E. G. Meiter and F. H. Gibson of the U. S. Bureau of Mines Experiment Station).

The final conclusions read as follows:

> We would then urge as our most important and fundamental recommendation that manufacturers of paints, lacquers, shellacs, varnishes and vitreous enamels to be used in spray coating should so far as possible eliminate benzol, lead and free silica from their products and where this has been done should clearly label such products as containing less than a certain maximum amount of lead or benzol or free silica as the case may be; and that employers using the spray gun for indoor and booth work should so far as possible insist on obtaining and using only materials so labeled.

A minority report signed by two members of the committee raises 8 points of dissension and is included upon the last page of the bulletin. These chiefly concern details of the conclusions which the two signers thought were not well founded.—National Safety Council, Chemical Section, Chicago, 1927.

Annual Report of the Ontario Division of Industrial Hygiene—Sickness and accidents are responsible for at least 75 per cent of all absence from work. The employer pays directly for accidents in Ontario, 7 or 8 million dollars per year. He also pays for sickness which costs several times as much. Wage earners in Ontario lose about 30 million dollars a year in wages on account of ill health in addition to all the anxiety and suffering. While occupational diseases are included in this estimate, it is largely made up of the same group of illnesses which affect the general population, e.g., colds, bronchitis, pneumonia, rheumatism and sore throat. About half of the lost time caused by these illnesses can be prevented. This may be done by (1) knowing the material (workers) with which the work is done, (2) periodic supervision of those engaged, and (3) establishing

facilities for promptly dealing with the first indications of a breakdown in an employe. The physician must be brought to the patient.

The division has prepared a booklet, *Occupational Diseases: A Ready Reference Manual,* for distribution. Physicians are using more extensively the division laboratory. Among the chief occupational diseases discussed are those due to lead, which is of chief concern in the storage battery plants, but the general conditions are very favorable in Ontario in this industry since the large manufacturers have made provisions for periodic physical examinations. Lead mining was found to have a few mild cases of lead poisoning. Lead sulphide is the form of ore. Ethyl gasoline is another possible source of lead poisoning which is being watched.

During 1926, 1,040 miners in northern Ontario quarries were given a physical and X-ray examination. In April, 1926, the Workmen's Compensation Act of Ontario was amended to include silicosis, and since that date 97 cases have been compensated. To cope with this condition steps are being taken to examine all men employed under ground at sufficiently frequent intervals to hold the disease in check. So far, the division has received reports of 50 cases and 3 deaths from caisson disease which have been compensated. A study has been made of nickel rash in electro-plating rooms and a quite satisfactory disinfectant has been found, to be used with cutting compounds and cutting oils. In one large iron and steel plant no cases occurred for a period of 6 months after the use of the disinfectant was started. Ventilation studies have been made in paper plants and in cotton and wool plants, also in two schools in Hamilton. As a result of work which has been done in the reduction of infection following injuries, a plant previously notorious for the number of infected injuries, employing 800 men for the year 1926, among 1472 cases of injury, had only 7 infected cases, which caused a loss of 68 days and a cost of $285.

Cyanogen chloride is being used for fumigation of bunk houses as a safer disinfectant than hydrocyanic acid, since the former has a tear-gas effect which serves as a warning.—J. G. Cunningham, *Annual Report,* Ontario Department of Health, 1926, pp. 18–23.

Resolution On Preventive Medicine Is Endorsed—Dr. L. F. Stewart (Consulting Surgeon, Pennsylvania Casualty Co., Clearfield, Pa.) reported:

Your committee appointed at the morning session of the Health Service Division presents the following for action:

1. That this body believes that it is proper and right that industry, through its medical department, should take all steps possible along the lines of preventive medicine so far as the employe and his family are concerned. Sanitation, examination of the employe, and the general prevention of disease along the lines of health education and the general employe's welfare are not only proper but essential.
2. That it is the opinion of that conference that all accident cases occurring to the employe of a company in the course of his employment should receive proper surgical attention without limit under company supervision in an effort to promptly restore him to his usefulness.
3. That it is the concensus of opinion of this conference that so far as medical attention to the employee is concerned the policy of many corporations wherein they give diagnostic aid in cooperation with the families be endorsed, and that the company lend every assistance to the family physician in returning this employee again to his work.
4. That it is the concensus of opinion

of this conference, except in isolated points, wherein it is impossible for the employee to obtain proper medical and surgical attention, that it is not advisable for the family to receive medical attention either at a stipulated stipend or at the expense of the corporation.—(Signed) S. R. Benedict, W. A. Sawyer, F. E. Clough, L. F. Stewart. *Trans. Natl. Safety Council*, General Sessions, Sixteenth Annual Safety Congress, 1927. p. 249.

Deaths from Lead Poisoning—Lead continues to occupy a position of supreme importance as an industrial poison, and for this reason the present bulletin prepared by Dr. Hoffman in his usual thorough manner is of much interest and value. In this volume Dr. Hoffman has analyzed the available statistics of chronic lead poisoning in the United States, Canada, Great Britain and certain other foreign countries. In addition to this there is presented an analysis of deaths from chronic lead poisoning in the U. S. Registration Area from 1914 to 1924. These death certificates are further classified by occupation and age, and in certain cases statistics concerning contributory causes of death are presented and analyzed. Lastly, in Part 3 of the bulletin, are presented the statistics for chronic lead poisoning from 4 state accident boards, namely Massachusetts, Pennsylvania, California and New York.

It is obviously quite impossible in a brief abstract to present Dr. Hoffman's findings in any detail. The death statistics of the U. S. Registration Area as well as those of the Metropolitan Life Insurance Company show that the death rate has been declining since the year 1912, and now, according to these data, has reached the rate of 1.6 per million persons exposed. The rates for white males and for colored males appear to be very nearly alike.

The largest number of deaths took place in the occupational group of painters, and but 62 occurred in the group of lead workers in smelting plants, etc.

The worker in the field of industrial hygiene cannot fail to be interested in this report and to those interested in the problem of lead poisoning it is of great value.—Frederick L. Hoffman, *Bull. No. 426* U. S. Bureau of Labor Statistics, Washington, Feb., 1927. L. G.

Occupational Diseases in the U. S. Navy—Carbon monoxide, illuminating gas, etc.—There were 6 admissions and 5 deaths. In 1 case, poisoning was reported as complicating another disease or condition. Illuminating gas escaping from a heater was reported as responsible for 2 deaths, gas from a range for 2, and gas from a jet for 1. One patient poisoned by carbon monoxide recovered.

Poisoning by volatile substances, bilge gas, etc.—Admissions were reported as follows: bilge gas, 3; copper and zinc fumes, 1; mariahuana plant, 1; trinitrotoluene (TNT) fumes, 2; and turpentine fumes, 1.

Poisoning by lead—There were 37 admissions. Fifteen cases of acute poisoning by lead paint, manner not specified, were reported, and 5 cases were reported in which acute poisoning was attributed to particles or dust from paint. Nine cases of chronic lead poisoning caused by paint were reported—*Annual Report of the Surgeon General, U. S. Navy*, 1927, p. 245.

FOOD, DRUGS AND NUTRITION

WALTER S. FRISBIE

Relation of Atmospheric Humidity to the Deterioration of Evaporated Apples in Storage—The work recorded here was undertaken for the purpose of studying the effect of the humidity of the storage room on the keeping quality of dried fruits, in particular evaporated apples. Five well known varieties were collected having uniform moisture content. These were stored at temperatures of 20° to 30° C. (68° to 86° F.) under conditions of humidity varying from complete saturation to complete dryness. In all cases the fruit absorbed or gave up moisture until equilibrium with the surrounding air had been maintained. It was found that with relative humidities of 18.8 per cent or less the fruit retained the original color, odor and flavor throughout the entire storage period of three years. Relative humidities between 47 and 80.5 per cent resulted in brownish discoloration, rancid odor, and bitter flavor. These changes were evident within one year with fruit having a moisture content between 9 and 10 per cent. If it is assumed that these changes are the result of enzymic action, the enzymes are evidently not destroyed by treatment of the fruit with sulphur dioxide, sodium chloride or by heating to 80° C. before drying. Relative humidities higher than 80.5 per cent resulted in the rapid development of molds and yeasts sufficient to destroy the material within a few months. Treatment preliminary to drying, such as sulphur fumes, dipping in 2 per cent salt solution, or heating in steam to 80° C. did not eliminate discoloration at low humidities or the development of yeast and mold growth at higher humidities. It was also found that deterioration was much more rapid in apples which contained highest acidity and lowest content of sugar. Fruit with a moisture content of 24 per cent (a maximum recognized by the U. S. Department of Agriculture for evaporated apples) is in approximate equilibrium with air having a relative humidity of 75 per cent at 30° C. (86° F.). Moisture is rapidly absorbed when the relative humidity rises beyond this point.—Charles W. Culpepper and Joseph S. Caldwell, *J. Agri. Res.*, 35:889 (Nov. 15), 1927.

Nutritional Anemia on Whole Milk Diets and Its Correction With the Ash of Beef Liver—Reference is made to an earlier article (*J. Biol. Chem.* 72:299, 1927) showing the correction by the addition of the ash of lettuce or cabbage of experimental anemia induced in rabbits by feeding whole milk—Fe_2O_3 diet. The present work records experiments using the ash of beef liver as the corrective. Rats of 50–60 g. in weight were placed on screens on a sole diet of whole milk until hemoglobin readings indicated that the animals were anemic. Since a whole milk diet results in depriving the animals of iron, a chemically pure solution of ferric chloride was made from standard iron wire and this was fed at a level of 0.5 mg. of Fe per animal per day without correcting anemia. Then beef liver and beef liver ash were tried. The former was dried at 65° C. for 67 days and then ground to powder which was fed by suspending it in whole milk and in amounts such as to introduce 0.5 mg. of iron, equivalent to that fed as $FeCl_3$. The ash of the liver was incinerated in a furnace at 650°–750° C., after which it was digested in

hydrochloric acid, diluted and filtered from insoluble residue. The filtrate, after concentration, was fed at a level of 0.5 mg. of iron daily and administered by stirring it into the milk. It was found that when iron in this amount obtained from liver was fed in either of the materials prepared prompt correction of anemia resulted and the hemoglobin was restored to normal, indicating that nutritional anemia of this type is due to an inorganic deficiency. A more detailed paper is to be prepared later.—J. Waddell, C. A. Elvehjem, H. Steenbock and E. B. Hart, *Science*, 67:139 (Feb. 3), 1928.

Vitamin A Deficiency and Urolithiasis—The author calls attention to the statement of Osborne and Mendel to the effect that out of 857 autopsies on rats on a vitamin A deficient diet they found calculi 81 times. McCollum and Simmonds found that calculi have occurred frequently in animals whose diets contained an abundance of vitamin A but were faulty in other respects and attributed the formation of calculi to general debility rather than to specific nutritional deficiency. These conclusions led the author to observe the rats in the laboratory of the Netherlands Institute of Nutrition as to the presence of calculi in the kidneys, the urinary tract and the bladder. The results of examination of 886 rats, 405 males and 481 females, are given. Among them were 241 which never suffered from vitamin A deficiency and in which no cases of calculi were recorded. The balance, 645 yielded 197 cases of calculi and these rats had been fed on vitamin A deficient rations as evidenced by chemical examinations. In addition to phosphate calculi were found those composed of calcium, ammonium magnesium phosphate and calcium oxalate, the latter occurring with McCollum's rachitogenic diet. It was observed that calculi on a vitamin A deficient diet formed rapidly, for example, after experimental diets of 9 days, 12 days, 17 and 19 days, and 3 weeks the formation of calculi proved very common. The author concludes that there is a connection between vitamin A deficiency and the formation of phosphate calculi.—E. C. van Leersum, *J. Biol. Chem.*, 76:137 (Jan.), 1928.

Nature of the Protein Surrounding the Fat Globules in Milk—Details are given of the methods employed by the authors to determine the identity of the substance or hull surrounding the fat globules in milk. The result indicated a protein substance of rather constant composition having a low ash content and very closely related to, if not identical with casein. This relationship is supported by the determination of sulfur, phosphorus and tryptophane content of the hulls which agree almost exactly with the casein content of these substances. A significant difference between the character of the hull-protein and the casein is the lower solubility and the darkening of the hulls when dissolved in sodium hydroxide which indicates the possible contamination of the hulls with some unknown substance.—R. W. Titus, H. H. Sommer and E. B. Hart, *J. Biol. Chem.*, 76:237 (Jan.), 1928.

Antiricketic Substances. VII. Biochemical and Spectroscopic Studies on Purified Cholesterol—Work recorded here as a result of biological tests and the examination of absorption spectra led to the conclusion that the ergosterol-like substance in cholesterol which is readily activated is in fact ergosterol itself. A description is given of the Shipley line test and the position of the three absorption bands of cholesterol and ergosterol are confirmed—293.5, 282, and 270 mu. A fourth band common to each was discovered at 260 mu. Activation by ultra-violet rays was possible in the case of cholesterol specially treated with charcoal or bro-

mine for the removal of ergosterol. The activatability is due either to cholesterol itself or to an impurity persisting after three purifications with bromine. Details of the biological and spectroscopic technic are given, together with a plate showing the absorption spectra of cholesterol and ergosterol selected from 200 exposures.—Charles E. Bills and Edna M. Honeywell, *J. Biol. Chem.*, 76:251 (Jan.), 1928.

Vitamins in Canned Foods — Strawberries—Previous papers on this subject indicated that the chief factor in destroying vitamin C in the canning of foods is oxidation, and that after the preliminary destruction subsequent heating has little effect. Four experimental lots of strawberries were canned; stemmed strawberries being put into the cans filled with water boiled and subsequently cooled to 120° F. Cans were then exhausted at 190° F. for 12 minutes, closed, cooked in boiling water for 8 minutes and then cooled in cold water. The four lots, before processing, varied in temperature and the manner in which they were kept. These lots were tested for vitamin C content approximately 15 months after the date of canning. Growth curves of 3 guinea pigs are shown indicating the value as a source of vitamin C of canned tomatoes, raw strawberries and canned strawberries. It was found that strawberries are a rich source of vitamin C similar to tomatoes, furnishing a protection against scurvy in guinea pigs in daily amounts of 2 to 3 g. Canned strawberries, after having been canned a year had a similar vitamin C content to the fresh berries. The explanation ascribed is that strawberries contain considerable oxygen. Compared with tomatoes, strawberries are only about one-fortieth as rich in vitamin A and about one-fourth as rich in vitamin B.—E. F. Kohman, W. H. Eddy, and Nellie Halliday, *J. Indust. & Eng. Chem.*, 20:202 (Feb.), 1928.

Biological Values of Certain Types of Sea Food. II—Vitamins in Oysters —Vitamins A, B, and D in oysters were studied by feeding tests on albino rats. The oysters were obtained from Chesapeake Bay, ground while frozen and kept frozen during the period of experimentation. It was found necessary to feed in this form owing to the fact that experiments indicated that dehydrated fresh oysters had lost nearly all of the original vitamin B property and a very significant proportion of vitamin A during the dehydration which apparently also changed the chemical composition of the oysters. In the case of rats which had developed xerophthalmia, raw frozen oysters were fed at the 3.5, 2 and 1 g. level daily. The 3.5 g. level caused a growth response and the chart indicated that the 2 g. level is sufficient to cure xerophthalmia, although more slowly than the higher amount. The 1 g. level had little effect either on the growth or on curing xerophthalmia. The vitamin B content of frozen oysters was determined by curative and prophylactic methods and the feeding was conducted at 1, 2, 3.5 and 5 g. level daily. Five g. resulted in excellent and uniform growth rate but somewhat slower rate with the 3.5 portions, lower levels being inadequate to maintain weight. By the prophylactic method, the 5 g. level maintained a satisfactory growth rate for 60 days but failed to maintain it for a longer period. The animals suffered a rapid decline at the end of 12 weeks. This was shown to be due to insufficient vitamin B which affords a comparison of results obtained by the curative and prophylactic methods.

The "line test" method was used to determine vitamin D. Five g. of oysters daily for 10 days resulted in slight calcification comparable with that produced by 4 mg. of a good grade of cod liver oil. This daily quantity of oysters resulted in complete calcification in 20 days. Ground, dried oysters were

used in experiments to determine the presence of the reproductive factor. As a result of this investigation the oyster was found to be deficient in this respect.

The article contains a discussion as to the reasons for the destruction of vitamins A and B during dehydration which is ascribed either to bacterial or enzymic action during the time required, usually about 30 hours, or to the effect of traces of certain metallic elements since oysters are known to contain copper, lead, arsenic, and zinc.—D. Breese Jones, J. C. Murphy and E. M. Nelson, *J. Indust. & Eng. Chem.*, 20:205 (Feb.), 1928.

Growth-Promoting Value of Cod Liver Oil Irradiated by Sunlight and the Mercury Vapor Lamp—In order to obtain further evidence as to the possibility of increasing the antirachitic potency of cod liver oil, three groups of six young rats each were fed a basal rachitic ration supplemented by 1 per cent of Norwegian cod liver oil dissolved in 2 per cent of corn oil. The cod liver oil for one group had received no treatment, for another had been exposed to direct solar rays, and for a third had been irradiated with a mercury vapor lamp at a distance of 2 ft. for 20 minutes. Two other groups serving as controls received the basal ration alone, in one case untreated and in the other irradiated with a mercury vapor lamp in the same manner as the cod liver oil.

As judged by the growth of the different groups through the experimental period of 8 weeks, the irradiated cod liver oil was no more effective than the untreated oil. That growth was a measure of antirachitic vitamin rather than vitamin A was thought to be demonstrated by the fact that the group receiving the irradiated basal ration made the greatest gains in growth.—A. L. Daniels and L. M. Brooks, *Proc. Soc. Exper. Biol. & Med.*, 24 9:971,972, 1927. Abstr., *Exper. Sta. Rec.*, 58:90 (Jan.), 1928.

Influence of the Age of a Milk, on the Result of Pasteurization—Cultures on gelatin and agar-agar were made of samples of fresh milk and of the same milks after sterilizing by heating for ½ hr. at 62–63° F., followed by rapid cooling, and a comparison was made of the total number and of the relative proportions of the different kinds of bateria in the fresh and sterilized milks. Similar tests were made on the milk after keeping for periods varying from 2 to 8 hrs. at temperatures from 8° to 30° F. The results show that the number of bacteria surviving pasteurization, as well as the percentage of these calculated on the total number present in the unpasteurized milk, are greater for the milks which have been kept for a time than for those which were sterilized at once in practice, it is therefore preferable to sterilize a milk as early as possible and then to keep it cool, rather than to keep it in cold storage and sterilize later.—A. Wolff, *Milch. Zentralb.* 11:233–238, 1927. Abstr. *Brit. Chem. Abstr.—B*, 47:33 (Jan. 6), 1928.

CHILD HYGIENE

MERRILL E. CHAMPION, M. D.

Progress Reports on Two Studies—It cannot be denied that there is urgent need for more intensive studies of the principles on which public health is based. Consequently it is encouraging to follow the course of two such studies, preliminary reports of which will be briefly summarized below.

The first, entitled "Principles of Measurement Used in the School Health Study" is by Dr. Raymond Franzen, Research Director, School Health Study, American Child Health Association. Dr. Franzen first discusses observation and interpretation and points out that every judgment must have some kind of measurement as its basis and illustrates by three possible ways of estimating the nutritional status of a child:

1. A physician may consider various aspects of the child and come to a general rating which unconsciously summarizes all of his considerations.

2. The physician may estimate each of about fifty items, such as "subcutaneous tissue over the biceps," "subcutaneous tissue over the triceps," "size of calf muscles," and so forth, as being satisfactory or unsatisfactory, and then base his judgment upon a conscious summary of these estimates.

3. He may measure each of the items that he wishes to consider with some instruments like caliper and steel tape and then base his judgment upon the material secured by this investigation.

Passing to measures which have been used to evaluate school health experience, enumeration is made of three: First, available records; this is unsatisfactory on the score of inaccuracy and lack of adaptability. Second, rating scales and appraisal forms, is unsatisfactory as measuring practices and not results. The third consists of tests "constructed in order to achieve particular ends." Such tests must meet certain criteria: (1) different examiners must be able to obtain the same results with the same children; (2) "the items which together form a particular test should be alike in the essential we are measuring and different in all unimportant and chance ways"; (3) "each item of the test must have a known diagnostic emphasis"; and (4) "the quality measured must serve a useful purpose."

The second study is one carried on in Syracuse, N. Y., by the New York Commission on Ventilation during the school year 1926–27. The summary of results is given by Mr. Duffield under the title "Effects of Mechanical and National Ventilation on the Health of School Children."

Six schools were chosen—3 ventilated by modern mechanical methods and 3 by forty- and fifty-year old furnace-heated, naturally ventilated buildings.

Various records were kept: a temperature record; and an attendance and health record covering (a) the pupils on the active roll, (b) the pupils present, (c) the pupils present with respiratory illness, (d) the pupils absent with respiratory illness—the latter term including coryza, pharyngitis, tonsillitis, laryngitis, bronchitis, pneumonia, tuberculosis, grippe, etc.

Without going into details, which should be read in the original report, it may be sufficient to say that Duffield considers the "gross or crude results" of the study show: that the mechanically ventilated schools showed excesses of 47 per cent in total absenteeism, 67 per cent in absenteeism due to respiratory illness, of 80 per cent in the pupil sessions attended with respiratory illness, and of 77 per cent in respiratory illness among the pupils present and absent.

The summing up in the form of conclusions follows in the words of the writer of the paper:

If our original data had been based on the more reliable foundation of diagnosis of respiratory illness by competent persons, and had our follow-up of absentees been such as to preclude the possibility of falsification of cause of absence, and had the numbers of individuals included in our study been greater, we should be warranted in making the unqualified assertion of what this preliminary study strongly suggests, namely, that natural ventilation has some inherent virtue which mechanical ventilation does not possess, or that mechanical ventilation involves some harmful influence from which natural ventilation is free.

The high correlation between respiratory illness absenteeism in the mechanically ventilated schools and precipitation has been shown. For those interested in the mathematical relationship, it should be stated that with the seasonal trend of respiratory illness removed, the correlation ratio for the period February 4 to April 14 is $+0.82 \pm 10$, apparently both reliable and significant, whereas the corresponding figures for the naturally ventilated schools are $+0.35 \pm 0.27$, demonstrating no significant correlation.

It shall be our endeavor through further studies to remove the doubts that cloud the findings of this preliminary study and to demonstrate whether the high rate of air change is the causative agency in the excess of respiratory illness absenteeism in the mechanically ventilated schools.—Raymond Franzen, Ph.D., *Child Health Bull.*, Jan., 1928; Thomas J. Duffield, reprinted from *J. Am. Soc. Heat. & Vent. Eng.*

Dental Prophylaxis—The January issue of the *Journal of the American Dental Association* includes a symposium of four papers by Drs. Quinby, Adair, Charters and Spalding on Dental Prophylaxis, presented at the Seventh International Dental Congress in 1926. Excerpts appear below:

It may be of interest to quote the opinions of a number of men recognized as leaders in the field of preventive dentistry:

It was because the profession did not clean teeth that the dental hygienist has come into existence. (T. P. Hyatt).

I have considered the future of the dental hygienist only in connection with the public schools . . . Thus it seems that the public schools . . . which reach all the children of all the people offer the largest contact with the public. It is safe to say that 90 per cent of all constructive health work for the future will be done through this agency.

From this conception of the interdependence of mouth health and general health . . . the field of the dental hygienist must be twofold:

First—There is the . . . prophylactic treatment and instruction in the hygiene of the mouth to aid in prevention of dental caries and gingivitis as far as it is possible, by cleanliness and artificial gum stimulation.

Second—There is educational service concerning these laws of general hygiene which promote the development and growth of a normal healthy body.

It is this work that must eventually influence the coming generation. Only through education can we hope to secure better teeth and a higher degree of immunity to dental disease. (A. C. Fones).

Conclusion: Periodic cleaning of the teeth is an important part of the program of preventive dentistry for both children and adults among the American population.

Gum massage is an important agency for the building of oral health.

The introduction of the child to dental service should be such as will enlist his coöperation.

All three of these things can be accomplished as well by the dental hygienist as by the dental practitioner, and at less expense to the community.—The Dental Hygienist, E. Melville Quinby, D.M.D., *J. Am. Dental Assn.*, Jan., 1928.

Prophylaxis has been of such tremendous import and has given such far-reaching results that the work has spread and expanded until it is almost outside the dental ranks, and is almost as big as our profession itself.

The dental hygienists are conquering the children and grown people where we failed, but some of us will be laid on the shelf with the great dominating idea which has gripped the disciples of Smith, that prophylaxis is the greatest thing in dentistry and the best thing which could be done for the patient; that its proper application requires more skill and knowledge of conditions than any other branch, and it should, for this reason, be administered by the dentist himself.

Oral prophylaxis, as often practiced, is a complete and miserable failure. This declaration but analyzes the fact that, when properly practiced with a spirit of knowledge and

enthusiasm, it is the greatest success of all things yet embodied in our profession.

If we find a dentist with a dirty, stained set of teeth, and the same condition in his wife and children, he knows prophylaxis is a failure. If we find an office where no talk or demonstration on preventive dentistry is given the patients, or the dentist has a hygienist in a corner of his office, just for a side-show, we know that no interest in the subject exists here. If you see a dentist or hygienist who uses a pot of ordinary pumice with a dental engine, you will probably see why prophylaxis is a failure. If you see a dentist or hygienist who fails to teach oral hygiene facts to his patients, you will also view another failure.—

Oral Prophylaxis as Practiced—A Failure or Success? Robin Adair, D.D.S., *J. Am. Dental Assn.*, Jan., 1928.

Today, we are in an era of preventive dentistry, when the most important dental procedures are cleaning, and the use of methods planned to produce sound teeth and to save them, rather than to repair them or provide substitutes after irreparable damage. In such preventive work, I believe that we are beginning to appreciate what the toothbrush can do more than we have ever done in the past.

It is my opinion that more good can be accomplished by the dentists, in this present age at least, in teaching patients how to clean the oral cavity correctly, than dietitians can possibly accomplish in trying to regulate the diet to such an extent that the toothbrush will not have to be used nor will it be considered a necessity.

The attention of the patient should be called to the fact that there are five surfaces to every tooth that should be brushed, mesial, distal, occlusal, buccal and lingual. The average person brushes two surfaces, namely, the buccal and lingual, and firmly believes that he has done a perfect job, when in reality he has not even started. The majority of people have learned incorrectly how to brush their teeth through instructions from the platform and toothbrush drills, or by reading toothbrush or tooth paste advertisements.—

Immunizing Both Hard and Soft Mouth Tissue to Infection by Correct Stimulation with the Toothbrush, W. J. Charters, D.D.S., *J. Am. Dental Assn.*, Jan., 1928.

Cleaning Teeth, as such, by the dentist, having in mind as an objective, clean teeth only, is a menial task, unworthy the time of any refined or educated person, and for which there could be no commensurate compensation. However, if the process is a step in the education of the patient in personal mouth hygiene, or in the establishment of oral health, or the treatment of oral disease, or for the sick, it assumes a different aspect, that of a dignified professional service. Repetition of this service is not justifiable after a state of health is once established. Everyone should do this work for himself, and patients ought to be impressed with their own obligations in this matter. Until we recognize these facts, we will always be looking for a way out of the task, being especially enthusiastic about passing the responsibility on to others.

If the individual dental hygienist is more interested and better qualified to impart knowledge concerning these subjects than the individual dentist, by all means allow her to do so, since thoroughness, a natural teaching ability and a broad training in psychology and hygiene are requisites.

The fundamental character of dental prophylaxis is made up of the following principles: It is inseparable from other branches of dentistry. Education in dental prophylactic measures is of prime importance. An operation on the teeth involves a consideration of the periodontium. The correction of incipient dental and periodontal lesions is essential. Thoroughness is indispensable. Perseverance is a requisite; as is also a consciousness of the truth of prevention in dentistry.—

The Fundamentals of Dental Prophylaxis, Grace Rogers Spalding, D.D.S., *J. Am. Dental Assn.*, Jan., 1928.

Maternal Damage—Dr. Louise McIlroy, Royal Free Hospital, London, in her address on Maternal Mortality, as reported in *National Health,* emphasized the much neglected topic of maternal damage from childbirth, claiming that maternal mortality figures could never be other than "misleading so long as no mention was made either of the women whose health was irretrievably ruined by childbearing or of those who died a few months after confinement from causes to which the conditions of labour had directly or indirectly contributed. What had to be considered was not merely whether the death rate rose or fell, but whether the damage rate was higher or lower as the years went by."

Maternal death is a tragedy always, but to send a mother home from the hospital broken in health, totally unable

to meet home conditions with any success, is surely almost equally serious.

Dr. McIlroy was very decided in her belief that needed dental attention should not be postponed until after confinement—both because of the "very definite danger of general toxemia arising from neglected teeth," and because if left until confinement is over it is apt to be again neglected.

Pregnancy occurring in the tuberculous can rarely be allowed to continue in her opinion, because of rapid deterioration of health after confinement.

Cancer of the cervix was included among the dangerous conditions resulting from unskilled obstetrics. Statistics showed that cancer of the cervix was almost wholly confined to women who had borne children, though there were no figures available to show that the danger was increased by the number of pregnancies.—*National Health*, Jan., 1928.

Bacteriology of Dried Powdered Milk Preparations Used in Infant Feeding—It would seem that we have an undue feeling of security as to freedom from bacteria of dried powdered milk preparations.

The Dicks report an investigation undertaken in connection with a study of an epidemic of enteritis which occurred in an institution in which the infants received artificial feeding composed largely of dried protein milk.

The method of taking the cultures from the samples of the preparations of dried milk is given in detail.

A feeding prepared for one institution of protein milk contained 22,000 bacteria per c.c., of which 11,000 were green-producing streptococci.

In the feeding prepared in the other institution from protein milk there were 9,000 bacteria per c.c. with 7,000 green-producing streptococci.

The conclusions are that the methods of manufacture do not destroy the bacteria in the milk and that bacteria remain viable in the product; also the preparation of the powdered milk feeding without boiling or pasteurization allows the bacteria in the product to persist in living form in the feeding.—George F. Dick, M.D., and Gladys H. Dick, M.D., *Am. J. Dis. Child.*, Dec., 1927.

Incidence of Tuberculosis Among New Zealand School Children—In 1926 a valuable investigation of the incidence of tuberculosis in 1,268 school children (ages 4 to 15 years) from country and town schools was undertaken in two districts in New Zealand. The objects of the piece of work were as follows:

1. To find the amount of tuberculosis occurring.
2. To learn what association exists between subnormal nutrition and latent tuberculosis.
3. To select groups of children requiring special provision.
4. To estimate the treatment necessary, either prophylactic or curative.

The children were given the Moro percutaneous tuberculin test. Positives were further investigated by means of the X-ray and chest examination by a specialist. Comparisons made with other data which are given in some detail "show the figures obtained to be trustworthy."

There were 14.1 per cent who gave a positive reaction to the Moro test; 8.3 per cent of the European country children were positive as against 15.8 per cent in town children. The last showed marked difference also. Twenty-five per cent of the Maoris, all of whom lived in the country, gave a positive reaction apparently because of the close association with infected persons.

In the Wellington district the country children under 7 years were all negative, while 7.3 per cent of the town children under 7 years were positive. The influence of family history and exposure to infection, past history and environment were all gone into in considerable details.

"There was no indication of the influence of milk supply, about half the children having been supplied with pasteurised milk and half from private dairies."

As to nutrition, the positive and negative groups showed subnormal nutrition to be equal. Twenty-six per cent of the cases were 5 per cent or more below normal in each group but the positive group gave a slightly higher figure for superior nutrition—8.9 per cent whose nutrition was 10 per cent or more above normal. (The term "normal" was used rather than average in this connection.)

The parents of each positive child were personally interviewed and in those cases requiring treatment special lines of treatment were laid down at a further interview.

Open-air régime, health camps, immunization by inunction with tuberculin ointment (already started in the Canterbury district) and ultra-violet light are recommended in appropriate cases.

Conclusions:

This work is yet in its infancy, but we have been able to select a group of children who will require watching until the age of twenty-five, and a smaller group requiring special care by the means most appropriate to the individual cases. This, if carried out more extensively in the future, should constitute a valuable means of prophylaxis, whereby the incidence of tuberculosis may be considerably lessened.—Mary Champtaloup, M.D., *Med. Off.*, Dec., 1927.

PUBLIC HEALTH NURSING

MIRIAM AMES, R. N.

New York State Public Health Nursing—Mathilde S. Kuhlman, R. N., says "coöperating with nurses of various charitable, industrial, and private organizations, the division of public health nursing gives the citizens the best of nursing care."

The public health nursing division in the state of New York in 1913 consisted of 4 nurses. It is now made up of a nurse director, assistant director, 63 supervising nurses, and an office force of 3 stenographers and 1 clerk. This expansion is commensurate with the increasing number of public health nurses in the state, there now being 1200 instead of the 135 in 1913.

Many of the public health nurses throughout the state are supported by funds from cities, towns, and counties under the health officers or boards of education. Every public health nurse employed from public funds must meet certain educational requirements. Each one must be a graduate nurse, not less than 21 years of age, registered by the Board of Regents of the New York University, and shall have had a postgraduate course in public health nursing. To be in the state's service, she must also have had a year's experience in actual public health nursing. Civil service examination is required for county and state service and for some cities.

The state is divided into 15 sanitary districts, and a supervising nurse is assigned to each district to assist the nurses in that territory, and to know the nursing service in her district. Some of the remaining nurses connected with the State Department of Health are assigned to the various divisions for special work connected with these departments. Sheppard-Towner funds employ 8 full-time and 30 part-time nurses in 29 communities for maternity, infancy, and preschool child work for a demonstration period.

An attempt is made to keep the state nurses and other public health nurses in public positions informed as to any new, approved methods of work. To this end

the staff nurses of the State Board of Health observe individually the work as it is carried on by such centers as the Maternity Center Association, the East Harlem Nursing and Health Demonstration, and others. Moreover, through federal funds the State Department of Health maintains a teaching center for maternity, infancy and child hygiene nursing. Nurses who are to take care of this work for the state must spend two or more weeks here for observation and training. (Other qualified public health nurses in or out of the state may avail themselves of this center.)

To help nurses to keep informed, there is a correspondence reading course, conducted by the New York University and the Bellevue Hospital Medical College. Each public health nurse is also provided with all the literature pertaining to maternal and child hygiene, communicable diseases, and social hygiene, published by these different departments.

To interest her still further in her chosen profession, there is held once each year a conference of health officers and public health nurses called by the State Health Commissioner. Needless to say, other conferences are held locally.

The incidence of poliomyelitis has given rise to special problems, that of caring for those unfortunate individuals afflicted by paralysis. For this purpose, the state has a staff of nurses under the direction of an orthopedic surgeon for follow-up work.

Not only does a close relationship and fine spirit of coöperation exist between the public health nurses employed by official agencies and the state Division of Public Health Nursing, but this is also found between the nurses employed by private organizations and the state. Thus, throughout all New York State public health nurses work together to promote the health of the people.—Mathilde S. Kuhlman, "New York State Public Health Nursing," *Nation's Health*, Nov., 1927. B. J. B.

New Social Hygiene Agency—The importance of venereal disease is a public health problem of great magnitude. Too often voluntary agencies are handicapped by the absence of a specified local, social hygiene association to which to turn, and the result is that this phase of public health nursing is inadequately dealt with, or disregarded entirely. Health workers in New York City have been faced with situations where their health efforts would have been of more avail had there been such an association.

The adoption of a social hygiene program by the New York Tuberculosis and Health Association has been announced, with a statement of the proposed objectives. The objectives are summarized as follows:

To discover infected cases and keep them under qualified treatment by aiding physicians, clinics, hospitals, and institutional and social agencies, and by maintaining an information service to the public.

To discourage and prevent treatment by medical charlatans, druggists, and unqualified practitioners.

To support the health department in securing the reporting of venereal disease and data, in epidemiological studies, in studies of adequacy and distribution of facilities, and in securing adequate appropriations.

To promote health education in coöperation with sex educational agencies.

To supplement law enforcement agencies by advice and authoritative information.

Nurses who have been asking themselves how best to aid those working for the prevention and control of venereal diseases have here perfectly definite, clear-cut answers to their questions.—*J. Social Hyg.*, Nov., 1927.

The Thirteenth Annual Report—One of the stabilizing forces in Public Health Nursing in the State of Massachusetts is the Association of Directors of Public Health Nursing Organizations. The thirteenth annual meeting was held in Boston, November 16, 1927, and ac-

cording to the *Annual Report,* 71 organizations were represented by 251 board members, this being the largest attendance since the association was organized.

The developments of public health nursing in its relation to the duty of the board members and the recognition by board members for the opportunity for discussion and exchange of experiences, is a need which this association has tried to meet, both in county and annual meetings. Following the trend of the times, a committee was appointed by the Public Health Section, Massachusetts State Nurses Association, to meet with a similar committee appointed by the Massachusetts Association of Directors of Public Health Organizations, to consider ways and means of effecting closer relations and affiliations.

The Report of the Study of Child Welfare questionnaires for the entire state is included with brief statements of the subject matter dealt with by those who gave the addresses. The report may be obtained from Agnes T. Marvin, Secretary, Hingham, Mass.

NOTE: Similar organizations exist in a few other states. The value of such organizations to public health nursing is inestimable. We call attention to the fact that the invitation to the directors to participate in nursing activities came from the public health nurses of the state of Massachusetts.

The Types and Treatment of Heart Disease—As long as heart disease yearly exacts its toll, interest is naturally attracted to this subject. Samuel A. Levine, M. D., has made a valuable contribution to the literature on this subject.

Dr. Levine discusses briefly the various important types of heart disease; points out the essential differences between them; and mentions some of the principles of treatment. The important types of heart disease in the order of their development during life are congenital heart disease, rheumatic, thyroid, syphilitic, and degenerative or senile heart disease.

In congenital heart disease certain portions of the heart, or main blood vessels leading to it, may be incompletely or imperfectly formed. Some of the deformities may not cause any sign of heart disease. Again, they may cause dyspnea, spells of suffocation, weakness, or even poor mental or physical development. Little can be done to prevent or treat congenital heart disease. However, as such children are very susceptible to infections, they should be carefully guarded from exposure to infectious diseases.

The second type of heart disease results from rheumatic infections. This usually manifests itself by acute inflammatory rheumatism or Saint Vitus's dance. Sometimes the signs are not so noticeable, being only tonsillitis, sore throat, or the pains familiarly known as "growing pains." Acute inflammation of the heart may be the first symptom of heart disease. While damage to the heart does not always result from rheumatic infection, many times serious organic changes are produced. In many cases, the patient may recover from the infection with no apparent damage to the heart, but this may show itself twenty years or more afterwards.

There are two parts to the problem of the treatment of rheumatic heart disease.

1. The care of the acute attack of rheumatic infections.
2. Care where congestive heart failure occurs.

In the first case, the patient is kept in bed and the parts affected and the patient made as comfortable as possible. Some form of salicylates is generally given for the rheumatic pains. The treatment of the second class is mostly concerned with the proper administration of digitalis. Restful nights are necessary. When edema exists, it is well to start the patient on 200 c.c. of milk four times a day, which may be increased to a soft or semi-solid diet. The use of salt should be restricted. Ordinary nurs-

ing care is an important part of the treatment, as anything which aids in the diminution of the physical and metal burden of the patient aids his recovery.

Once the diagnosis of thyroid heart disease is made, a course of treatment follows which will prepare the patient for surgery. All the measures advocated for the treatment of heart failure should be applied with the addition of the administration of Lugol's solution.

Syphilis produces a certain type of heart disease. It usually affects the aortic valves causing aortic insufficiency. This results, usually, years after the initial infection. The outstanding feature of this disease is pain in the chest and also dyspnea. When this aortic type of patient shows heart failure, he is not able to live much longer than a year or two. Treatment is the same as that for any kind of heart failure with the addition of the measures which will treat the underlying disease, syphilis. Marked distress in breathing may be relieved by hypodermic injections of morphine or caffeine.

Degenerative or senile heart disease is the last to be considered. This is usually caused by the changes going on in the blood vessels. "When the arteriosclerosis is essentially limited to arteries, there results a condition called angina pectoris. When angina pectoris is not present, the generic term 'chronic myocarditis' is used to describe the condition." In cases of angina pectoris, death frequently takes place suddenly. However, this is not always the result. Treatment then depends upon the severity of the attack and the economic status of the patient. He is better off in bed for a month or so. Some form of nitrites or the inhalations of an amyl nitrite pearl should always be used for an attack. The patient should rest, particularly after meals.

In chronic myocarditis the heart gradually becomes inefficient. The strength of each beat is impaired. Dyspnea, edema of the organs, engorgement of the liver, and an accumulation of blood in different parts of the body develop. The patient should be kept in bed and the usual nursing care given.

Not much is known about the prevention of heart disease. Improved general nutrition will probably diminish the instance of rheumatic fever in the young. It would be well for children and adolescents to be over normal weight and for adults after 40 to be below normal weight.—The Types and Treatment of Heart Disease, Samuel A. Levine, M. D., *Am. J. Nurs.*, Nov., 1927. B. J. B.

State Aid for Connecticut Towns—Westbrook is the first town to start a new public health nursing service under the new state law which gives state aid in proportion to the amount of town tax receipts. Westbrook has appropriated its pro rata share for this service; a public health nurse has been appointed; and the work is now functioning.

The town of Cornwall has made application for the subsidy for public health nursing, its share having already been appropriated.—State of Connecticut *Health Bull.*, Nov., 1927.

EDUCATION AND PUBLICITY

EVART G. ROUTZAHN*

Talking and Planning for the Section—Members of the Section Council with other interested members of the Public Health Education Section gathered in New York for a day and a half in February. Plans were laid for the Chicago program and exhibits, and for other section activities. All present were enthusiastic over the value of talking over program possibilities and plans for extending the services of the section. It is hoped to hold such a conference every year.

Public Health Education Institutes—The Section Council agreed to conduct a limited number of one- or two-day institutes or conferences. These might be held under the auspices of state health organizations or by university extension departments. A moderate fee will be charged to secure regular attendance and to reduce the expense to the sponsoring body. Invitations to hold institutes should be addressed to the chairman, Professor Ira V. Hiscock, Yale University, New Haven, Conn.

Talking It Over Among Yourselves—The round tables being conducted by the New York Committee on Publicity Methods (see *A. J. P. H.* Feb., 1928, p. 242) have been so interesting and practical that we hope health workers in different cities will adopt the idea. And at least one such session might be held in connection with any state meeting of health workers. Details will be supplied by Evart G. Routzahn, 130 East 22d St., New York, N. Y.

"Media of Publicity" for Medical Societies—The following were offered by Dr. Frank C. Hammon, Chairman, Committee on Lay Education, Medical Society of Pennsylvania: "Newspapers (distributed direct and through syndicates and county societies; magazines, distributed through agencies or direct); labor organizations; fraternal organizations; ministerial organizations; men's clubs and service organizations; women's clubs; churches, radio; movies; stores, libraries; schools and colleges; trolley cards; industrial corporations; coöperation with insurance companies; inauguration of 'Health Week' by county medical societies; health-examination clinics in connection with 'Health Week'; county fairs and other exhibits; state farm show; coöperation with Anti-tuberculosis Association, welfare federations, cancer and heart associations, and any health organization; coöperation with state, county, and city health departments; coöperation with nurses, druggists, and dentists' associations; inauguration by county societies of permanent health-examination clinics; coöperation with hospitals and hospital associations."—*Atlantic M. J.*, Aug., 1927.

Education Against Cancer—"Not only must the laity and the medical profession be educated, but dentists and nurses must be informed of what they should know," says *Campaign Notes*, American Society for the Control of Cancer, 25 West 43d St., New York, N. Y., Jan., 1928. Under "Suggestions for a State Campaign for the Control of Cancer," the following methods are listed: "For the public: newspaper articles and editorials; lectures; moving

* Please address questions, samples of printed matter, criticism of anything which appears herein, etc., to Evart G. Routzahn, 130 East 22d St., New York, N. Y.

pictures; exhibits; radio talks; pamphlets, posters and booklets; personal instruction of patients by physicians, dentists and nurses; clinics. For the medical profession: papers read before meetings of societies; lectures by speakers from a distance; conference of members of hospital staffs; clinics; pamphlets, reprints, etc." *Free.*

Small Type in Books—"Is there any way of 'getting under' or making war against publishers who produce books with small type? As a seller of books for boys and girls, I have been literally bombarded with complaints from customers about them. Many refuse to consider books with excellent material just because of poor print. . . . The printers of such books are not only defeating their own purposes as to sales, but they are sacrificing the eyes of boys, girls, and grown-ups."—Letter from Bookshop for Boys and Girls, Boston, in *Saturday Review of Literature.*

Write protests to publishers of books issued in too small type. Get material for a press story (or suggest the idea to a local editor) by interviewing book sellers as to the relative saleability of books in small type. Use large type in your own leaflets and booklets.

Education in a Measles Epidemic—Observations in the midst of measles epidemics in a number of cities prompted the following educational or publicity suggestions:

Enlightening information as to the nature of measles, reasons for changing former regulations, etc., should be given out and the responsibility of the public in the prevention of deaths made clear.

What may be expected of the health department by way of help—such as free medical attention if the family cannot afford a physician, visiting nursing service, and hospital facilities—should also be publicly known.

If any foreign newspapers are available they should be used freely.

A special effort should be made to reach parents of preschool children through educational visits and by pamphlets.

—Measles a Community Emergency, by Bee S. Hoiles. *Pub. Health Nurse.* Feb., 1928.

Social Hygiene Workers Believe in Education—"How much of the budget ought to go into educational measures? In the association budget for the last two years it has been about three-eighths. Anything up to 100 per cent was the concensus of opinion."—*Social Hygiene News* (Jan. 30, 1928) reporting some of the practical questions discussed at the annual meeting of the American Social Hygiene Association.

Health Propaganda in France—"With the assistance of the voluntary national health organizations a general propaganda committee was formed" by the Office National d'Hygiene Sociale. "This committee has endeavoured to organize a vast campaign of popular education throughout the country, through the press, posters, pamphlets, tracts, wireless talks, films, lectures, etc. It has also been active among large bodies of workers such as railway employees, the merchant marine and present and future teachers. In 28 departments it has carried on intensive campaigns in the form of Health Weeks and Health Fortnights, has supported health organizations and in a general way has contributed to the development of public health services or associations.

"One point which deserves special mention is the organization during the past year of a nation-wide propaganda campaign against venereal diseases, the results of which have been most satisfactory. . . . The Office has completely fused the various activities in the field of health education, which have hitherto lacked unity. Thanks to universal propaganda and to concentration on certain activities, the General Propaganda Committee has succeeded in awakening

a health intelligence among the public, thus advancing the cause of public health."—*World's Health*, 2 Avenue Velasquez, Paris, France, Jan., 1928. With reproductions of six French health posters strikingly different from any produced west of the Atlantic.

Why Do They Get Diphtheria in Detroit?—As is true everywhere because they lacked protection. In an attempt to learn why they were not protected the Detroit Department of Health

. . . made a study of 100 recent cases of diphtheria, the results of which are given below. Inasmuch as practically all the cases were among children, the question, as to why toxin-antitoxin had not been given, was answered by the parents.

In 45 cases toxin-antitoxin had not been given because of plain neglect—putting it off—on the part of the parents. In 14 instances parents had never heard of toxin-antitoxin. In 9 instances the parents did not believe in toxin-antitoxin. In 9 cases parents stated that the child had never been ill and that they thought it was not necessary to give toxin-antitoxin to a child who had never been ill. In 9 cases either the parent or the child was afraid that the giving of toxin-antitoxin might cause a little pain, that is, that it would hurt. In 6 instances the mother said that she did not have the time nor facilities for taking her children to a physician or clinic. In 3 cases the parent did not think it was necessary to have a child of preschool age protected against diphtheria.

There were the reasons given in 95 per cent of the cases studied. The remaining 5 did not have toxin-antitoxin because the child had been sick a great deal and the parents were afraid to have toxin-antitoxin given; the parents did not believe that toxin-antitoxin and vaccination against smallpox should be given in the same year, and as the child had just been vaccinated they were waiting until the following year to give diphtheria immunization; and because another child in the family had had a severe reaction and the mother was therefore unwilling to have the second child immunized.

Here are real ideas for the Detroit health workers to meet in their educational publicity. Would not such a study be worth while in other communities?

STATISTICS

Bar charts versus circle diagrams is discussed in the *Journal* of the American Statistical Association (Columbia University, New York, N. Y.) in the issues of June, 1926; March, 1927; and Dec., 1927. The last is devoted solely to "accuracy of judgment," disregarding "popularity and appeal," and other points. The conclusions do not seem to be sufficiently convincing to be quoted.

The not altogether convincing estimates of the economic waste through deaths by tuberculosis are improved on in *Health-grams*, Illinois Dept. of Public Health. Feb. 15, 1928. *Free.*

Snap, zip, vigor or kick may get into a diagram of statistical data after reading "Add a Picture to Your Sales Curve," by E. P. Hermann. *The Poster*, 307 South Green St., Chicago, Ill., Oct., 1927. 22 illus. 30 cents. (If it does not "take" with you, mail the copy you buy to the editor and he will buy it from you and refund the 30 cents.) *We wish to exhibit specimens of picture diagrams or diagrams with pictures at Chicago in 1928.*

RADIO

A series of radio talks has been given during the past two months by Dr. George K. Pratt and other members of the National Committee on Mental Hygiene staff on the subject of "Why Men Fail," from Station WEAF. The talks were based upon a series of articles under this general title which appeared in the *New York Herald Tribune* and twenty other newspapers.

What does this mean? The opening paragraph of a radio talk: "It is the general opinion of scientists that cancer is at first a local disease. Something goes wrong with the regulating mechanism of the body and as a result the unwholesome persistent growth begins and once begun it cannot stop itself, but must be removed or destroyed." *Will someone re-write this for the radio audience?*

MOTION PICTURES

The Connecticut State Department of Health now offers 43 health films "covering almost every phase of health. These include science films all of which are valuable for use in the upper grades and in high schools, there are many popular films suitable for showing in public moving picture houses, some of which can compete easily with the best in the 'movies.' "—List *free.*

Pictures on child welfare, general hygiene, tuberculosis, malaria and sex education are supplied by the League of Red Cross Societies, 2 Avenue Velasquez, Paris, France. Catalogue *free.*

The series of motion pictures being produced for the American College of surgeons by the Eastman Kodak Co. are outlined in *The Motion Picture,* 469 Fifth Ave., New York, N. Y. No. 10. *Free.*

"Teaching with Motion Pictures in Nursing Schools and Hospitals," by Priscilla Bernard. *Trained Nurse,* 468 Fourth Ave., New York, N. Y. Oct., 1927. 35 cents.

LISTS

"Directory of State and Insular Health Officers, 1927." *Public Health Reports,* U. S. Public Health Service. Nov. 11, 1927. 5 cents, from Superintendent of Documents, Washington. Includes main budget items, and publications issued.

EXHIBITS

Small cut-out photographs, 6, 8 or 10 inches high, have been effective for window display or exhibit use. In Toledo the Community Chest placed groups of 8 inch figures in an open-front box or theatre 16 by 26 inches, and 6 inches deep. By having the mounting and cutting done by the children of one of the member agencies the cost was but a few cents for each figure.

"A Museum Illustrating Welfare Work for Cripples in Germany," by Dr. Hellmut Eckhardt. *World's Health,* Nov., 1927.

"What a Health Department Could Do for Suffolk County" was graphically sketched in attractive colors at the Suffolk County (N. Y.) Fair on a map 3 by 6 feet. Reproduced in *S. C. A. A. News,* 105 East 22d St., New York, N. Y., Oct., 1927. *Free.* They hid the modest 20 cents per capita in small letters in a corner! Why not at the top: "for only 20 cents per capita," or "What Two Dimes Apiece Would Do for Suffolk County Citizens."

HONORABLE MENTION

International Health Board: for an illustrated, readable, comprehensive, condensed annual report, with table of contents and index (the latter, unfortunately, with legibility lessened by the use of capital letters).

PUBLIC SPEAKING

Audiences totaling 250,000 were reached in 1927 by 1,125 lectures given through the American Social Hygiene Association.

Whom Shall we Have as Speaker? Council of Social Agencies, 312 West 9th St., Cincinnati. 30 pages. 4 cents for postage. Suggestive where health and social agencies are planning a common speakers' service. Health topics are grouped as "general" on group and community health problems and needs, and "instructive" on how to preserve health and prevent disease. Then there are talks on child health and mental hygiene.

POPULAR HEALTH ARTICLES

"Food, the New Medicine," by E. R. Stevenson. *High School Service,* American National Red Cross, Washington. Dec., 1927. 15 cents. Vitamins simplified.

"For Longer and Healthier Lives." *Literary Digest.* Jan. 28, 1928.

"How's Your Cold?" by Ruth F. Wadsworth, M.D., *Collier's,* New York,

N. Y. Jan. 28, 1928. "The prevalence of the common cold is an indictment of our civilization." Good popular booklet copy. Read to see how the subject *can* be made readable.

OFFICE

Many hints, helps and hunches on office practice are to be found in "Over My Desk," a monthly page conducted by Elwood Street in *The Survey*.

Minor distinction through postage stamps: In place of a one and a half cent stamp use three half cent stamps; again place the three stamps end for end instead of side by side; watch for the special commemorative stamps sold from time to time—sometimes one must send to one of a few post offices to which the sale is limited.

"The magazines (received at national headquarters of the American Red Cross) will be routed to anyone wishing to see them regularly." Are the professional periodicals and other helpful publications routed to all members of our staff who might be interested? Have we ever sent to all staff members a list of the periodicals received regularly? Do we list periodicals received in a department or by an individual staff member who would be willing to loan them to others?

"Personal" on letters may be unfortunate if not used with discretion. A Philadelphia publishing house is unwise enough to add "personal" to the address on envelopes containing book circulars.

OPPORTUNITIES

Five posters were reproduced in *The Poster*, 307 South Green St., Chicago, Ill. Nov., 1927, from a heart poster contest conducted by the Tuberculosis Society of Detroit, Mich. *The Poster* editor will welcome advance information and photographs of the prize winners from other competitions.

The proportion of public health books from the United States and Canada among the reviews in *World's Health*, 2 Avenue Velasquez, Paris, France, seems too small. Scientific and popular books, reports of demonstrations, and reports of special studies would be welcomed by the editor.

REGRETTABLE

That the interesting health reading in the *Monthly Bulletin* (Galveston) is always *after* the uninteresting though significant statistical material which is given the choice first pages in every issue.

That one city health department has been written 3 times (without results) suggesting that the street number be added to the address of the monthly bulletin sent to a reader in New York City. Every month, without the street address, the bulletin must be passed on to a post office worker who looks up that street address.

AWARDS

Awards for good publicity will be made by the Committee on Publicity Methods at Memphis, May 2, 1928. The conditions for entering examples in Newspaper Publicity, Letters, Folders and Booklets are supplied by the Committee at 130 East 22d Street, New York, N. Y. Material issued since March, 1927, may be entered.

Somewhat similar awards may be made by the Public Health Education Section of the A. P. H. A. at Chicago in October, 1928.

The awards in both groups of contests will be made for specific good features: for the lead of an article, for the cover of a report, etc.

TITLES

"Conquerable—But Unconquered."—*Weekly Health Review*, Racine. Diphtheria.

"Where Do You Suppose I Could Have Caught It?"—*Weekly Health Review*, Racine.

LAW AND LEGISLATION

JAMES A. TOBEY, LL. B., DR. P. H.

Surgeon General Cumming Reappointed—Appointment of Dr. Hugh S. Cumming for his third term as Surgeon General of the U. S. Public Health Service was confirmed by the Senate on January 27, 1928. Dr. Cumming became Surgeon General in 1920, succeeding Dr. Rupert Blue.

Progress on the Parker Bill—At the hearings on H.R. 5766, the Parker Bill for coördination of federal health activities, held by the subcommittee of the House Committee on Interstate and Foreign Commerce on January 11 and 12, 1928, considerable opposition was expressed to the first and second sections of this measure. These important sections would empower the President to transfer executive bureaus doing health work to the U. S. Public Health Service by executive order, or direct that scientific personnel of the U. S. Public Health Service be detailed to other bureaus to assist or supervise public health activities. The opposition came from agricultural and dairy interests, who seem to feel that the U. S. Public Health Service already has too much power and would get too much more by the passage of such a law. A new bill, H.R. 11026, has been introduced in place of H.R. 5766 and this new one, with the former first section deleted, was reported to the House on February 21, 1928.

While the remainder of this bill contains many important matters, the first two sections were the ones which would really bring about the necessary correlation of federal health work, which sanitarians have been urging for half a century or more.

Milk Import Act in Force—Funds made available by the First Deficiency Act, signed by the President on December 22, 1927, have made possible the enforcement of the Federal Import Milk Act, which became a law on May 15, 1927. The Food, Drug and Insecticide Administration of the Department of Agriculture has organized a staff and arranged to issue the permanent permits required. Since the passage of this law, milk and cream have been coming into the United States under more than 3,800 temporary permits. The Canadian authorities are coöperating by conducting tuberculin tests and making sanitary inspections of dairies in the Dominion. Our government has placed an inspection service at Rouses Point in New York and will establish other stations.

An investigation into the costs of production of milk and cream was ordered by the U. S. Tariff Commission on March 4, 1926, and hearings were scheduled for this purpose, beginning February 23, 1928.

An appropriation of $10,000 for expenses of an American delegation of ten to attend the Eighth International Dairy Congress in London next July was voted in the House on January 26, 1928, and in the Senate on February 21.

Amendments to the Sanitary Code of New York with reference to milk are given in *Health News* of that state for January 2, 1928.

Federal Subsidies for Rural Health—A million dollars a year from the national treasury for rural hygiene—This is the object of a bill, H.R. 7005, introduced in Congress by Representative Bankhead of Alabama, and referred

to the Committee on Interstate and Foreign Commerce. This same measure, which is similar in principle to the so-called Sheppard-Towner Law, has been before the last two or three Congresses, but so far without action. The U. S. Public Health Service is designated as the executive agency to administer the act and to approve state plans for rural hygiene. Federal grants would be made only to those states accepting the act and matching the federal money with a state appropriation.

An Emergency Fund—Another million would be appropriated by the national government as an emergency fund to cope with unusual perils to the public health, according to S. 2691, introduced in the Senate by Dr. Copeland. This bill recites that it shall be the duty of the Surgeon General to present to the President any situation where there is great and imminent peril to the public health by reason of impending pestilence, and if the President is convinced of its existence, the Surgeon General would be directed to take such measures and incur such expenditures, in coöperation with state health authorities, as might be necessary.

To Make May Day Official—May Day would be officially designated as national child health day by a joint resolution, H.J. Res. 184, entered in the House by Representative Greenwood of Indiana, and in the Senate by Mr. Barkley as S.J. Res. 89.

Other Bills Before Congress—Hearings on a bill to grant $50,000 toward the maintenance of the Gorgas Memorial Institute in Panama were held on January 20, 1928, before the Judiciary Commitee of the House. A resolution (H.J. Res. 175) has been introduced to change the name of the Ancon Hospital in the Canal Zone to the General Gorgas Hospital and this was referred to the Committee on Military Affairs of the House. An appropriation of $310,000 for construction at Walter Reed Hospital in the District of Columbia is provided by H.R. 9676, passed by the House on January 26. The measure (H.R. 5658) to allow the rank and pay of a colonel in the Medical Corps of the Army came up in the House on January 16, 1928, but was passed over on objection by Mr. Blanton. A bill (H.R. 10078) to strengthen the immigration laws provides for deportation of aliens who violate the white slave and narcotic laws. There are several bills for a federal department of education (H.R. 7, H.R. 5693, H.R. 5790, S.1584). The Department of Agriculture would be enriched and probably enlivened by a Federal Alcoholic Liquor Board, according to H.R. 8131. There are a number of bills to regulate chiropractic, osteopathy, and other cults in the District of Columbia.

The Message of Governor Smith—More than half of the famous 100-page message transmitted by Governor Alfred E. Smith to the Legislature of New York on January 4, 1928 is concerned with public welfare. Health comes in for a fair share of comment, for, says Governor Smith, "Proper attention to the preservation of the public health will produce a strong, healthy, vigorous people. There is no greater state asset." He then goes on to say that there is abundant reason to be well pleased with progress in this field in New York during the past ten years, and he proceeds to outline some of the activities of the Department of Health.

With respect to the Federal Maternity and Infancy Law, the Governor says, "Although upon questions of political principle there existed considerable opposition to the state taking advantage of the federal government offer of funds under the Maternity and Infancy Aid

Act, the state adopted a wise course and allowed the political debate to be carried on in its proper place, but meanwhile made provision to meet the contributions of the federal government for maternity and infancy care."

After discussing the Physically Handicapped Children's Law, by which judges of the Children's Court are authorized to issue orders covering the physical care and treatment and the education of physically handicapped children, the Governor devotes some attention to public health nursing. "One of the most important factors in health work is the public health nurse," he says, pointing out that there has been an increase from 500 such nurses in the state ten years ago to 1200 today.

The importance of the county health law, which was passed in 1921, is stressed in the message: "Our knowledge of preventive medicine has reached the point where for best results its administration should be in the hands of a qualified full-time expert in this field." Although towns and villages can seldom afford such service, only one county has taken advantage of it, and the Governor rightfully believes that New York is laggard in this respect.

Much attention is devoted in the message to the Mental Hygiene Department. There is also considerable discussion of the workmen's compensation law, in connection with which it is pointed out that provision has been made for compensation for 23 distinct forms of occupational diseases.

Among the 29 recommendations, are several affecting public health. These include suggestions for extension of the Physically Handicapped Children's Law to cover physical handicaps other than orthopedic defects; establishment of a minimum wage board to study the problem of wages paid to women; provision for compensation for all occupational diseases arising out of and in the course of employment; and increased facilities for after-care.

From the standpoint of public health, this document from the pen of Governor Smith has all the marks of statesmanship.

State Health Laws in 1926—Approximately 110 new laws and 60 regulations pertaining to public health were passed and adopted during 1926, according to William Fowler, LL.B., whose latest compilation of *State Health Laws* has just been issued by the U. S. Public Health Service as *Supplement No. 65*. Mr. Fowler has listed for us some of the subjects treated by these new laws. Tuberculosis hospitals, water and sewage, and health authorities seem to have been the favorite health legislative topics during 1926, while shellfish control, camp sanitation, and communicable disease control induced most of the new regulations. Unlike some years in the past, there was very little on the venereal diseases in 1926, though two states, Connecticut and Illinois, adopted regulations on this subject. An interesting law was one passed in Louisiana placing a tax on kerosene to raise funds for various public health purposes. Only one state, Rhode Island, had a new law dealing with milk, though four states adopted regulations concerning this product. A law relative to cancer, providing for a state program, was passed in Massachusetts. These annual compilations of state health laws have been issued since 1911 by the U. S. Public Health Service and are useful bulletins, especially for sanitarians interested in the laws of states other than their own.

Proposal to License Health Officers—Examinations and licenses for health officers are now required by law in only one state, New Jersey, though this method of attempting to secure well qualified health officials has been much

discussed by sanitarians during the past few years. Recently there has been introduced in the Massachusetts Legislature a bill to provide for the licensing of local health officers. This measure has been carefully drafted and is a good example of a concise, yet complete, bill and one which contains a proper delegation of authority. This bill is, in fact, so important that it is herewith presented in full.

Section 1. On and after one year from the date of passage of this act no person shall be appointed as a local health officer, or as an executive or agent of the board of health of any town or city having a population of more than ten thousand or as the executive officer or agent of any group of towns having a combined population of more than ten thousand unless he has been licensed as a health officer by the State Department of Public Health.

Section 2. A license as a health officer shall be issued by the State Department of Public Health to each person who passes an examination in the following subjects: communicable disease control, epidemiology, public health laboratory methods, personal hygiene, municipal sanitation, water supply and waste disposal, control of milk and other food supplies, vital statistics, and sanitary law.

Section 3. The State Commissioner of Public Health shall appoint a board of not more than five well qualified persons to act as examiners of applicants for licenses as health officers. Such examinations shall be held at such times and in such places as the Commissioner shall determine. Such examinations shall be conducted in accordance with rules made by the State Department of Public Health.

Section 4. This act shall not prevent any local board of health from continuing in office, without examination and license, any health officer or agent who fills such office at the time of passage of this act.

Section 5. A fee of .... shall be paid to the State Department of Public Health by the applicant for each examination taken for a license as health officer.

Health and Mental Responsibility—Attempts to set up mental irresponsibility as an excuse for all behavior not in accordance with accepted standards were strongly decried in a radio talk recently delivered by Dr. Frederick W. Parsons, Commissioner of the Department of Mental Hygiene of New York. Some of these unscrupulous attempts were characterized as disgraceful by Dr. Parsons, who also stated that such methods caused public suspicion of the integrity of the medical and legal professions. It is, of course, proper that persons who are actually sick mentally and who do not understand the nature of the acts should not be held responsible for crimes and should be placed in suitable institutions, but attempts to secure their freedom because of alleged "brainstorms," "twilight states," and "emotional insanities," are "insults to group intelligence," according to Dr. Parsons.

Along these lines, it is interesting to note that a bill (H.R. 177) has been introduced in Congress for a laboratory in the U. S. Public Health Service to study the abnormal classes. Bills have also been introduced (S.2684, H.R. 9762) to regulate the commitment to and discharge from St. Elizabeths, the Government Hospital for the Insane, of persons certified by heads of departments. On January 13, 1928, St. Elizabeths and its superintendent underwent an attack by Representative Blanton. An appropriation for this institution was, however, adopted by the House.

Patents and Public Health—Several items of patent law having some effect on public health have recently been decided in the federal courts and the Patent Office. Thus, patents have been granted for a milk bottle having a neck with internal ribs and without the usual annular flange (Patent No. 1654365); and for an improvement on a process of obtaining "vitamins" (No. 1649520). A patent for a laxative chewing gum containing phenolphthalien has been held invalid by the Circuit Court of Appeals of the Second Circuit in Health Products Corp. v. Ex-Lax Mfg. Co., because there was no disclosure of the actual commercial practice.

The most important of these decisions on patents has to do with an invention made by a chemist of the U. S. Public Health Service while he was in the government employ. The United States was held to be the equitable owner and entitled to assignment of this patent, in the case of Houghton v. United States, decided recently by the Circuit Court of Appeals for the Fourth Circuit. While on government duty Houghton conducted experiments on fumigants and developed an improved type which combined a warning or irritant gas with hydrocyanic acid gas. Contrary to the wishes of his employer, the U. S. Public Health Service, he obtained a patent, which was, however, disallowed by the Federal District Court of Maryland after the United States had brought suit. On January 10, 1928, this decision was upheld on appeal to the Circuit Court.

Miscellaneous—An osteopath cannot be appointed as a school medical inspector in New Jersey, according to a decision of the State Education Commission, reported in the *New York Herald Tribune* for January 27, 1928.

Changes and additions to workmen's compensation laws in the states made during 1927 are outlined in the *Monthly Labor Review* of the U. S. Bureau of Labor Statistics for January, 1928.

Death due to actinomycosis has been held to come under the workmen's compensation law of Wisconsin in Pfister and Vogel Leather Co. v. Industrial Commission, 215 N. W. 815.

An exhibit for the International Exposition at Seville, Spain, to be held next October, is being prepared by the U. S. Public Health Service.

The U. S. Women's Bureau has issued a pamphlet (*Folder 5*) describing its activities. This bureau has prepared 4 bulletins on health problems of women.

The appendix of the *Congressional Record* for January 18, 1928, is embellished with a rather extensive article on the peril of narcotic drugs, by Richmond P. Hobson. It was placed there at the request of the Hon. Hugo L. Black of Alabama.

CONFERENCES

April 12-14, American Society of Biological Chemists, Inc., Ann Arbor, Mich.
April 12-14, Federation of American Societies for Experimental Biology, Ann Arbor, Mich.
April 28, National Research Council, Washington, D. C.
April 30-May 2, American Pediatric Society, Washington, D. C.
April 30-May 2, National Probation Association, Memphis, Tenn.
April 30-May 5, National Congress of Parents and Teachers, Cleveland, O.
May 1-2, American Association of Pathologists and Bacteriologists, Washington, D. C.
May 2-9, American Association for Organizing Family Social Work, Memphis, Tenn.
May 7-10, National Conference on City Planning, Dallas, Tex.
May 10-12, American Association of Hospital Workers, Memphis, Tenn.
May 23, American Climatological and Clinical Association, Washington, D.C.
May 23-26, American Physical Education Association, Baltimore, Md.
May 28-June 2, American Library Association, West Baden, Ind.
May 28-June 7, General Federation of Women's Clubs, San Antonio, Tex.
July 8-12, Congrès International de la Protection l'Enfance, Paris, France.
July 8-13, First World Congress of Social Workers, Paris, France.
July 16-21, Thirty-ninth Congress Royal Sanitary Institute, Plymouth, England.

BOOKS AND REPORTS

Dictionary of Bacteriological Equivalents, *French-English, German-English, Italian-English, Spanish-English—By William Partridge, F. I. C., Baltimore: Williams & Wilkins,* 1927. 141 pp. Price, $4.00.

The author has produced a book which may have certain uses, is well printed and very free from errors.

While the majority of the words included are used in bacteriology, there are many which do not belong to that science especially, and many more which the veriest tyro in science would understand without having to look them up in a special book. Others which need definition are omitted. Why, for instance, is the French word for otitis, the meaning of which is evident to everybody, given, while the word for mumps, which only those familiar with French know, left out? Surely mumps is discussed in bacteriological works as well as otitis. Many similar examples could be cited. There are numerous chemical and medical terms which are more used in ordinary medicine than in bacteriology. The definition for the word "témoin" is given as "control experiment," though it is applied to animals as often as to other control work.

It seems a waste of space to give the English equivalents of such words as camera lucida, carbonate, colon, eczema, ether, fungus, menthol, mucus, nickel, nitrate, peptone, pepsine, quinine, virus, and many others which are the same in English, and which any first course medical student would understand.

It would be more useful to give the equivalents in the different languages for the same set of words. In the book before us there are 2400 French, 2600 German, 1200 Italian and 1600 Spanish words. French and German are more read than Italian and Spanish, but, by the same token, are more familiar and need less explanation.

M. P. RAVENEL

Diseases of the Mouth—*By Sterling V. Mead, D.D.S. 274 ill. and 29 col. pl. St. Louis: Mosby,* 1927. Price $10.00.

We have with approval repeatedly called attention to the growing recognition of the importance of oral hygiene as a matter of public health. Only recently a well written book has classed it among the three great advances made within the last ten or fifteen years. With this we are inclined to agree. Consequently we always receive a book on oral hygiene with more than ordinary pleasure, especially if, like the present one, it is good. We believe that physicians generally are too much inclined to regard dentistry as a specialty, in which they have no concern, and to neglect the hygiene of the mouth, which is only incidentally connected with dental work, and which has a much wider bearing than the actual filling of teeth, or the correction of dental deformities.

The present volume is designed primarily for students. It begins very properly with methods of examination of the mouth and with certain general principles involved in diagnosis, which are of as much value to the average physician as they are to the dentist who does the practical work.

Living in Washington, as the author does, he has had exceptional advantages in ability to consult with prominent men in some of our services, as well as access to the Surgeon's Library, which is generally considered the best medical library

in our country, and one of the best in the world.

The author goes much further than average writers on oral hygiene. Not only does he consider the malformations and diseases which concern the teeth, the alveolar structures, the gums, the tongue, lips, related glands and accessory sinuses, but goes into such conditions as syphilis, diseases of the blood and blood vessels, nerves, etc. One chapter is devoted to the relation of oral sepsis to systematic disturbances concerning which the physician of today is so painfully aware, and about which we are all so eagerly seeking information.

We think the author has made a mistake in substituting rather jaw-breaking scientific names for some well known terms. "Pyorrhea alveolaris" is given to us under the name of "suppurative periodontoclasia," and one discovers this only in the index.

The book is beautifully gotten up, and abundantly illustrated with 274 excellent illustrations, most of which are photographs, and 29 plates in colors, all of which are well done. It is printed on the heavy paper of which our American publishers seem to be so unfortunately fond. On this account, the reading of the book is a burden, and one could very well knock an ox down with it.

M. P. RAVENEL

Subject Matter in Health Education—*By Ruth Strang, Ph.D. Contributions to Education, No. 222. New York: Bureau of Publications, Teachers College, Columbia University.* 1926. 108 pp. Price, $1.50.

This book presents the results of a statistical investigation of health education in the United States as recorded in representative courses of study of 11 cities, 3 rural communities, 4 states, and in 14 selected texts. Some 43 of the 108 pages in the book are devoted to tables. Following these an evaluation is made of the usefulness and scientific accuracy of the material review.

The author finds that numerous of the statements which occur commonly in courses of study and texts must be classed as of the undesirable type: because they are indefinite, (Drink plenty of water); they are of minor value to health (Keep the school room tidy); they are of the negative type (Don't bite your nails); they tend to bring out the reverse of what is desired (Stand straight, Keep your ears clean and free from wax); they are too sweeping and make no allowance for individual differences (Play hard and fair). Statements which are scientifically unsound likewise abound. Some of these are merely mild inaccuracies which state dogmatically as a fact points which have never been scientifically proved and on which there is a difference of opinion (A mid-morning lunch is very beneficial to children; Coarse foods are necessary for health); others are exaggerations (Cooked cereals make children strong and healthy); and still others are definitely inaccurate, (An apple a day keeps the doctor away. Protein causes an expenditure of more energy than it supplies). Attention is likewise called to the omissions in the texts of important types of material, and to the frequent faulty organization.

Having pointed out the shortcomings of the outlines and texts reviewed, the author very properly presents constructive suggestions gained from this material and from her own experience for the improvement of practices in the schoolroom. She outlines a method of organizing the subject matter of health education around health situations as they actually occur in the schoolroom, on the street, in the home. In conclusion the author includes sample pages of the Gates Strang Health Knowledge test which was one of the outgrowths of this investigation.

As a whole the book will be of interest

to directors of health education and others concerned in outlining courses of study, while the practical suggestions in the latter half will also be useful to the individual teacher. The study reveals a need for better courses of study outlined by specialists who can assure the accuracy of the material; outline it clearly, and logically; decide wisely on the grade placement of the various topics; and present the essential subject matter in sufficient detail to make it usable by the average teacher. LYDIA J. ROBERTS

The Normal Diet, A Simple Statement of the Fundamental Principles of Diet for the Mutual Use of Physicians and Patients—*By W. D. Sansum, M.S., M.D. (2nd ed.) St. Louis: Mosby,* 1927. 136 pp. Price, $1.50.

The author has produced a book of much value, which can be read with advantage by the average person. Like the first edition, it contains some statements which are contrary to those made by standard physiological authorities, but these for the most part, concern minor matters.

A number of excellent menus are given, and we find in an appendix a number of weight and height tables taken from various sources. These are useful, if we remember the various criticisms which have been made of such tables, and do not depend too entirely upon them.

The printing and make-up of the book are excellent. M. P. RAVENEL

Practical Pedodontia Or Juvenile Operative Dentistry and Public Health Dentistry—*By Floyde Eddy Hogeboom, D.D.S., (2nd ed.) St. Louis: Mosby.* 1927. 108 pp. Price, $3.50.

This attractively and fully illustrated book gives to the dental practitioner a clear statement of the objectives and methods in the practice of children's dentistry. The chapters present: the embryological development of the head of the child, cavity preparation for deciduous teeth, filling material used in deciduous teeth, the treatment of the first permanent molar, the treatment of pulps in deciduous teeth, the problem of nutrition related to the teeth, prosthetic appliances, dental prophylaxis, and public health dentistry. All of these phases of the subject carry full illustrations. It is a book for the dental practitioner not for the sanitarian or layman. In his chapter on Public Health and Dentistry the author presents a discussion of the dental phase of the school health program using the work in Pasadena and Los Angeles as illustrations.

C. E. TURNER

Secrets of Good Health—*By Sir W. Arbuthnot Lane, Bart., C. B. New York: Doubleday, Page,* 1927. 152 pp. Price, $2.00.

This book is hard to evaluate. Much of it is written by the surgeon whose name appears as the author. Three themes predominate. The first boosts the New Health Society, of which Hippocrates is spoken of as the "greatest pioneer," and which is described as the "greatest movement of the age." The second idea concerns constipation, and the third dwells on the baneful effects of white bread, to the eating of which the author ascribes pretty nearly every trouble to which man is heir, up to and including cancer. This part of the book is written in superlatives. We are advised "On no account eat any white bread . . . . the curse of our age is that we are provided with white bread." We are told "that a perfect dietary renders disease impossible," and are warned of the "terrible influence of diet and habit in the production of cancer." We are even told that in schools, time which should be spent in the toilet is "sacrificed to being present at Divine service." There is some very queer bacteriology and even more queer physiology. Some of the chapters written by others are

more conservative, but practically all show the influence of the "New Health Society" which is to bring about such a change in the world if only it can have its way.

The book is made up largely of articles contributed to the *Daily Mail* by the author, and others at his invitation. According to his own estimate "millions of people" have learned good habits and "thousands of letters" have been received showing the "incalculable value" of the teaching which has been given to them.

The book contains a considerable amount of good advice, but on the whole, is the expression of a fad in which there is some substance covered by a large amount of froth. M. P. RAVENEL

Hygiene and Sanitation for Nurses—*By George M. Price, M.D., (5th ed.) Philadelphia: Lea & Febiger,* 1927. 286 pp. Price $2.25.

This book is divided into 7 chapters, which deal in turn with discussions of mortality problems and the rôle of the nurse; the hygiene of habitations, of foods, of childhood, of occupations; with infectious diseases and their prevention, and with constitutional diseases and personal hygiene. As a practical guide for nurses to modern hygiene and sanitation methods, this book has both good and weak features. It is unfortunate that a 1927 edition should devote a section to chemical means of water purification without mention of chlorination; or should give as an "official" definition of pasteurization "the heating of milk to a degree of heat sufficient to kill all most active germs," without an adequate presentation of modern knowledge regarding the value and increasing use of this method of safeguarding milk supplies. Four pages are devoted to gaseous disinfectants and to methods of disinfection of rooms, a practice discontinued by most modern health departments (except for destruction of insects), as contrasted with only brief references to methods of immunization of children against diphtheria. The statement that "the Schick test in children has been used successfully by the New York Health Department in other diseases such as poliomyelitis, scarlet fever, measles, etc.," may be somewhat misleading.

The chapters dealing with the hygiene of habitations, and of occupations, are perhaps the most valuable portion of the book for nurses. With the exception of the discussion of milk, the chapter on foods and food supply may also be helpful. IRA V. HISCOCK

Common Sense Health—*By Arthur Geiringer, M.D. New York: F. S. Crofts & Co.,* 1927. 208 pp. Price, $2.00.

This book comes to us with the approval of the Life Underwriters Association of Canada. It is very well written in popular language, and for the most part contains good advice which the average reader can follow with advantage. A number of statements arranged somewhat in tabular form give useful summaries of what has been discussed, and serve as concise reminders to the reader of what he should bear in mind. One of these is a series of questions which people should ask themselves in order to determine the general condition of their health.

Special prominence is given to oral hygiene, which the writer considers one of the greatest contributions made to preventive medicine during the last ten years.

Unfortunately there are some evidences of carelessness. The writer seems to regard vaccines and serums as identical, and his statistics concerning the Spanish-American and the World Wars are woefully inaccurate. During the latter, he says that there were only 297 cases of typhoid fever in the entire American Army of over a million men. The fact is that there were 1,897 cases, with 287 deaths, and the number of men

concerned was 4,128,478. We must also disagree with the advice to spray the nose with albolene containing camphor twice a day, especially during the winter months. Specialists say this is injurious, and one very prominent man in this line of work makes the distinct statement that the constant use of oils causes dryness of the mucous membrane of the nose and throat.

With these exceptions the book can be recommended. It is well printed on light paper with a mat surface.

M. P. RAVENEL

A Handbook of Summer Camps—(*4th ed.*) *Boston: Porter Sargent,* 1927. 872 pp.

This is the fourth edition of an annual survey of summer camps for boys and girls from coast to coast. Coeducational camps, camps conducted by religious denominations, and national organizations, camps with school connections and those emphasizing arts and crafts, dramatics, dancing, nature study, foreign language study, and physical educational courses are included in the list. The camps are also listed geographically and the names of directors and endorsing groups are given. The introduction carries a history of summer camps with special contributions by camp directors. The maps and index add to the value of the book, which has been compiled with care and thoroughness. A. B. T.

Diphtheria Immunization in Schools—*Monograph No. 2 published and distributed by the School Health Bureau of the Welfare Division, Metropolitan Life Insurance Co.* 22 pp.

This monograph makes suggestions for a workable program, showing how school executives can secure the coöperation of the teachers, parents and children in the diphtheria immunization campaign. It has been prepared by a committee consisting of Prof. C. E. Turner, Massachusetts Institute of Technology, Dr. Peter Sandford, University of Toronto, and Dr. Florence Brown Sherbon, University of Kansas. The detailed work in the preparation of the study was done by C. Margaret Munson, a special student in the Department of Biology and Public Health, Massachusetts Institute of Technology. A. B. T.

America's Human Wealth—The Money Value of Human Life—*By Edward A. Woods and Clarence B. Metzger.* New York: F. S. Crofts & Co., 1927. 193 pp. Price, $2.00.

Three of the five chapters, about one-half of the book, are devoted to an introduction and to the history of money valuations of human life from the earliest times to the present. In Chapter Three, the title of which is "Modern Estimates of Human Life Values," the authors make no mention of the reviewer, or the most significant modern work in this field, that of Dr. Louis I. Dublin. They do worse than ignore Dr. Dublin's widely known contribution by mentioning an old estimate of his made in connection with a study of the cost of tuberculosis—work long superseded by more recent researches.

In the judgment of the reviewer, a book which makes so serious an omission does not merit the confidence of the reader. ROBERT E. CHADDOCK

The Oxygen Demand of Polluted Waters, *U. S. Public Health Service Bull. No. 173* and *Mortality Among Negroes in the United States, U. S. Public Health Service Bull. No. 174.* Washington, D. C.: Federal Treasury Department. Free.

Bulletin No. 173 was prepared by Emery J. Theirault, chemist of the U. S. Public Health Service. The bulletin dealing with the Mortality Among Negroes in the United States was written by Mary Gover, Sc.D., assistant statistician of the U. S. Public Health Service with an introduction by Edgar Sydenstricker.

A. B. T.

The Preschool Service in a General Health Program—*Practical Procedures, in the Home, in Medical Conferences, and in Mother and Child Classes*—*New York: East Harlem Nursing and Health Demonstration, 354 East 116th Street, New York, N. Y.*, September, 1927.

This is one of a series of reports on the work of the East Harlem Nursing and Health Demonstration. In a small highly congested area of New York City was organized five years ago an experiment in coöperation by the Henry Street Settlement, the Association for Improving the Condition of the Poor, the Maternity Center Association and the American Red Cross. This booklet covers in outline form with some discussion the procedures used in the home, in medical conferences and in mother and child classes.

The preschool service was so organized that all procedures may be generally classified under one of the three headings of home visits, physician conferences in the center with both nurse and nutrition workers present, and classes of groups of mothers and children. The education of the mother is no doubt the principle around which the whole scheme is organized.

How to reach the 6,000 preschool age children of this community would seem to be a difficult problem but the introduction states:

> The service grew rapidly. At only one time was any "canvassing" done to find children and this was soon discontinued as the problem early became one of selection from the large number of children who needed the service and who were known to the field workers.

The contacts were made:

A. By transfer from the infant service
B. Through the acute nursing service in families not previously known
C. Referred by social agencies
D. In families carried for other health services
E. Through application to the clinic
F. Referred by staff workers

Beyond this statement we are uncertain as to how many of the 6,000 children were reached although the statistical summary gives the children and mothers attending the various forms of activity carried on without a definite statement as to whether the same child may have been counted more than once in the several services rendered.

This report not only tells in outline what kinds of procedures and policies were followed, but presents all the routines and principles followed in home visits, the medical conferences at the health center and the lesson plan of the 14 classes for mothers. The organization of the conferences, arrangement of appointments, the equipment, the duties of the staff, the posture class procedure, record forms, printed and mimeographed material used are all presented for the help and guidance of other workers contemplating a similar service. Illustrations of the health center equipment, the staff at work, and the display of posters and lesson leaflets for the mothers' classes gives added interest to this booklet. Suggested equipment with prices for children's playrooms and sources for obtaining materials for posters and exhibits are additional useful features.

With such a presentation of method interest is aroused at once as to evidence of accomplishment, and it is hoped that future publications from this demonstration may, through critical analysis of the activities, throw additional light upon the successes and possible failure that may be expected from such a program.

H. H. MITCHELL

Introduction of Sex Education Into Public Schools—*By Thomas M. Balliet, LL.D. New York: American Social Hygiene Assn.* 1927.

The title of this small pamphlet explains the contents which also include the administrative problems that arise in connection with this subject. A list of social hygiene publications is given.

A. B. T.

HEALTH DEPARTMENT AND OTHER REPORTS

IRA V. HISCOCK

Epidemiological Report—League of Nations—The fourth epidemiological report of the Health Section of the League of Nations for the year 1926 occupies 100 pages and contains an immense amount of valuable information to health administrators. In previous reports, statistical tables have been arranged to show the conditions in each country separately, but now all information is grouped according to disease. This enables the reader to obtain a better view of the situation of any particular epidemic disease. A detailed tabular index has been prepared, and this makes unnecessary a large number of tables in the text. Carefully prepared maps and charts add interest to the report. The arrangement of these charts and statistical tables in relation to descriptive text is worthy of study by health workers preparing annual reports.

Information on the prevalence of notifiable diseases is now received by the Health Section from practically all countries in which such information is collected. It is amplified by mortality statistics, by cause, for large towns throughout the world. Plague was on the whole more prevalent in 1926 than in 1925. This increase, apparently temporary, occurred in many countries, but was most marked in northern India. The geographical distribution of cholera was similar to that of the previous year. There was observed comparative quiescence in main centers in India, marked extension in various countries further east, with complete absence of the disease west of India. The reappearance of yellow fever in Senegal in October, after the arrival of a convoy of 200 Syrians, gave rise to a series of cases in widely separated localities which had not been infected for many years.

According to this report, the classical type of smallpox has now become fairly rare in Europe, except in the Union of Soviet Socialist Republics, but mild smallpox continues to be spread in England. It seems from mortality reports that the severe form still predominates on the continent, at least in France, southern and eastern Europe. It is stated that the United States is in much the same position as England, in that the mild form has been spreading for a number of years. "Vaccination laws are insufficient in many states and the proportion of vaccinated children is, over large areas, below the safety limit." The situation of the United States is said to be less favorable than that of England because the disease began to spread earlier and is now of more or less common occurrence in practically the whole of the country, while in England, so far, only a limited area in the north is infected.

Typhus fever has decreased, and is now, so far as Europe is concerned, of practical importance only in eastern Europe, although endemic centers still exist in a few other localities. Undulant fever occurs in most Mediterranean countries, but is nowhere very prevalent except in Malta. Enteric fever is spread over the whole world in contrast with most of the diseases previously mentioned. Interesting data are given for different countries regarding the incidence of this disease. The most severe outbreak of typhoid fever in 1926 was at Hanover, Germany, which began toward the end of August and lasted throughout September. There were in all about 2,500 cases and 260 deaths in a population of approximately 425,000. The case mortality rate was 10.4 per cent. This epidemic was preceded by one

of probably between 20,000 and 30,000 cases of acute gastric and intestinal catarrh, which lasted until the end of August. According to conclusions of the government commission, the epidemic was probably due to water-borne infection.

The year 1926 passed without any influenza epidemics of primary importance. "Together with the two epidemic diseases of the central nervous system—epidemic encephalitis and epidemic poliomyelitis—this disease constitutes undoubtedly the most urgent unsolved epidemiological problem." Statistics regarding the incidence of poliomyelitis are not available for all countries. Acute poliomyelitis is stated to be far more prevalent in Europe, North America, New Zealand and Australia than elsewhere. A decrease was noted during the year in the United States and Canada.

The incidence of diphtheria in most countries has in recent years been running its normal course with small temporary increases and decreases. A more permanent improvement seems to have occurred in the death rate from diphtheria, but it has, on the whole, not been so great as in the case of scarlet fever. In the United States where the immunization campaign is more vigorously pursued than elsewhere, there has been a steady decrease of diphtheria since 1921. Measles undoubtedly causes more deaths throughout the world than either scarlet fever or diphtheria, being prevalent in both cold and hot climates and among most races. It probably causes more deaths in Egypt and the adjoining part of Asia than any other epidemic disease. Notification of whooping cough cases is not compulsory in many countries, and is incomplete in most countries. The reports are probably more complete in Denmark than elsewhere; in 1926 there were 890 cases per 100,000 inhabitants. It is an important disease which causes considerable mortality among the very small children in most countries. In Mexico there were more deaths from whooping cough than from the other three epidemic diseases of childhood combined. It causes a greater mortality than either diphtheria, scarlet fever or measles in the Scandinavian countries, the Netherlands, Germany, Switzerland and Austria.

Hamilton, Ont.—Hamilton's progress in health work is effectively set forth in a report for each of the years ending October 31, 1926 and 1927. The form of the report is of interest. The pages are $8\frac{5}{16}$ inches x $11\frac{9}{16}$ inches. The first two pages give the organization and personnel of the board and the department, the third page carrying a classified financial statement arranged by functions. Photographs of city officials and bureau heads precede an interesting account of the medical officer of health. Effective graphs add to the clarity of the report. An alphabetical index facilitates reference to special topics.

Diphtheria immunization work is carried on in all the clinics, as it was found that a large number of children could be reached through these channels. This city with a population of 123,359 expended through the health department $87,616 during the current year 1926. A birth rate of 22.5, a death rate of 10.46 and an infant mortality rate of 65 are recorded. It is noteworthy that these statistics with the principal causes of death are briefly mentioned in the early part of the report.

In the 1927 report, interesting charts and tables indicate the trend of diphtheria in this city since 1905. In that year, with a population of 57,561, there were 218 cases with 22 deaths. With considerably over twice that population in 1926 there were 121 cases with 3 deaths, while in 1927 there were only 11 cases with 1 death. "When the department commenced its diphtheria immunization work in 1922 we expected, perhaps, 5 years as the period to elapse

before any appreciable results could be noted. The figures for this year not only show a remarkable diminution in the number of cases and deaths, but far surpass our most sanguine hopes."

New Haven Community Center—How an annual report, with considerable statistical data, may be made interesting and attractive is demonstrated in the 94th report of the Children's Community Center. Effective photographs of children and buildings, with excellent graphs and charts, are distributed throughout. These are carefully arranged in relation to the descriptive text. A study of this report gives one a good picture of the year's work, with its special problems and accomplishments.

In this institution, with its modern buildings and equipment, medical care following a complete physical examination safeguards health; personality trends are studied; psychological examinations are used in educational and vocational guidance; and preparation is given for placement in carefully selected and supervised foster homes. The children are received from other agencies, parents or guardians, without regard to race, creed or color, and no effort is spared to provide them with scientific foster parenthood.

Montreal Anti-Tuberculosis and Health League—The third annual report of this organization contains annual meeting addresses and summaries of a year's work. The address of the chairman of the board of directors is of special interest because of proposals or suggestions made in regard to the work of different official health and school agencies for the improvement or expansion of their programs. The general health situation has been surveyed for this purpose and the recommendations seem in accord with modern tendencies.

From the managing director's report, it is learned that over 6,000 copies of a booklet ***Health in the Home*** were distributed in homes under supervision. This manual is also used as a textbook for group instruction. The Royal Edward Institute received 1,300 copies, upon request, for their patients. Through the courtesy of the school commissions, a book-plate of health rules was given to each school child, and under the supervision of their teachers, was pasted in one of their school books. This is an educational device worthy of note. The report contains an excellent analysis of the various types of cases under supervision of the league.

Shreveport, La.—The biennial report of Shreveport for 1925 and 1926 covers the work of the different city departments, including health. Food inspections include all places where food or drink is prepared, served or sold. The U. S. Public Health Service standard milk ordinance has been adopted, and there is an active movement for the pasteurization of milk. All milk and dairy products used in the manufacture of ice cream are either boiled or pasteurized. There were 2,015 samples of ice cream analyzed with 735 plant inspections during the period.

Mosquito control work is said to date from 1923 following a dengue fever epidemic. By a gradual process of education and demonstration, interest has been aroused so that now there are provided systematic control measures practically the year round.

School medical examinations are carried on under the Board of Health. Of 15,591 white children examined, 7,592 were found to have defects, while 6,589 defects were corrected. Of 6,700 colored children examined, 3,109 were found to have defects, while 2,330 defects were corrected. Circulars and booklets on child health have been widely distributed.

A SELECTED PUBLIC HEALTH BIBLIOGRAPHY WITH ANNOTATIONS

RAYMOND S. PATTERSON, PH.D.

Mosquito Larval Food—Mosquito larvae hatched from eggs freed from contaminants were fed upon pure cultures of various unicellular organisms. Yeast, infusoria, algae, and bacteria all proved to be suitable foods, but no considerable larval growth could be obtained on sterile nutrient media or dead organic material.

BARBER, M. A. The Food of Culicine Larvae. Pub. Health Rep., 43:1 (Jan. 6), 1928.

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BAUMAN, LOUIS. Obesity. J. A. M. A., 90:1 (Jan. 7), 1928.

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CRONNIN, H. J., and SULLIVAN, E. A. The Problems of Adolescence. New York J. Med., 28:2 (Jan. 15), 1928.

A Mechanical Respirator—This paper describes an apparatus resembling a huge autoclave into which the patient is placed. A large pump alternately raises and lowers the pressure causing an interchange of air in the lungs.

DRINKER, C. K. New Apparatus for Artificial Respiration: The Barospirator of Prof. T. Thumburg. J. Indust. Hyg., 10:1 (Jan.), 1928.

Toxins of Tubercle Bacilli—Experimental evidence is reported which indicates that the tubercle bacillus produces a filterable toxin from which an antitoxin may be obtained in sheep. The toxin may be used as a reliable skin test.

EBERSON, F. Filterable Toxins of Tubercle Bacilli and Production of Antitoxic Serum in Sheep. J. A. M. A., 90:4 (Jan. 28), 1928.

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EVANS, H. M., and BURR, G. O. Development of Paralysis in the Suckling Young of Mothers Deprived of Vitamin E. J. Biol. Chem., 74:1 (Jan.), 1928.

Vitamin B During Lactation—Studies on white rats indicate that the increased amounts of vitamin B needed during lactation is due to the greater need of the anti-neuritic, not the growth-promoting factor of the vitamin B complex.

EVANS, H. M., and BURR, G. O. On the Amount of Vitamin B Required During Lactation. J. Biol. Chem., 74:1 (Jan.), 1928.

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HALL, I. C. The Practical Utility of Bacteriologic Control of Water Supplies. J. Am. Water Works A., 19:1 (Jan.), 1928.

Water- and Milk-Borne Typhoid—The natural result of neglecting the protection by chlorination of the water supply and the pasteurization of milk

was visited upon Santa Ana, Calif. Public health administration would profit if more cities that sowed the wind might reap the whirlwind.

HALLIDAY, C. H., and BECK, M. D. Typhoid Fever Epidemic, Santa Ana, California. J. Prev. Med., 2:1 (Jan.), 1928.

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GODFREY, E. S., Jr. Measles in Institutions for Children. J. Prev. Med., 2:1 (Jan.), 1928.

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STOKES, A., et al. The Transmission of Yellow Fever to Macacus Rhesus. J. A. M. A., 90:4 (Jan. 28), 1928.

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British Puerperal Fever Regulations—Any febrile condition occurring within three weeks of childbirth must be reported as puerperal fever. Proposals for lowering the puerperal death rate are given thorough consideration.

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A TEXTBOOK OF BACTERIOLOGY AND ITS APPLICATIONS. By Curtis M. Hilliard. Boston: Ginn, 1928. 329 pp. Price, $2.80.

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A MONOGRAPH COVERING THE ORIGIN, HISTORY AND SIGNIFICANCE OF THE TERM CASTILE SOAP. By Robert W. Mitchell, Ph.D. Cambridge: Author, 1927. 185 pp.

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MOSQUITO SURVEYS A HANDBOOK FOR ANTI-MALARIAL AND ANTI-MOSQUITO FIELD WORKERS. By Malcolm E. Macgregor. New York: Wm. Wood, 1928. 293 pp. Price, $5.50.

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NEWS FROM THE FIELD

NEW HOSPITAL AT WAUSEON, O.

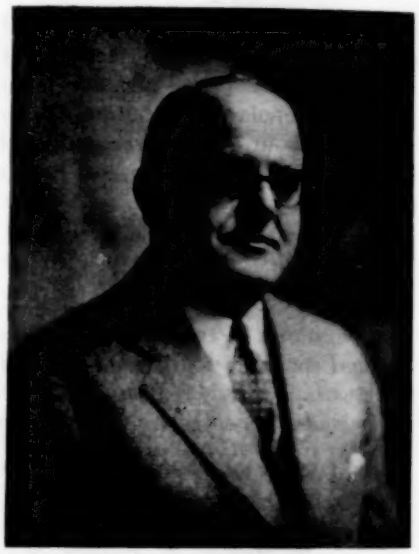
WAUSEON, O., has been selected as the place for the fifth rural hospital in a series to be built by the Commonwealth Fund of New York in an effort to improve health and medical conditions of rural districts. The hospital will be a 50-bed institution, with a training school and it will be fully accredited. The local medical profession promises its coöperation.

T. B. ERADICATION WORK

THE results of coöperative tuberculosis-eradication work up to January 1, 1928, given in a summary issued by the Bureau of Animal Industry, U. S. Department of Agriculture, show unusual progress in combating this disease. The work of tuberculin testing has been going forward with unusual rapidity in recent months. The number of cattle tested monthly has ranged from about 900,000 to more than a million. The large number of cattle on the waiting list to be tested is regarded as evidence of the desire of livestock owners to avail themselves of the opportunity to free their herds from tuberculosis.

NEW DIVISION OF COMMONWEALTH FUND

THE Commonwealth Fund announces the establishment of a division of publications which will issue reports and studies dealing with the various activities of the fund. As part of its work the new division will continue the series of publications relative to the fund's program in the field of mental hygiene and child guidance, which was begun by the joint committee on methods of preventing delinquency. This committee, created for the demonstration period of the program, has now been discontinued, and its staff has become the staff of the new division. The offices are at 578 Madison Avenue, New York, N. Y.



B. S. Pollak, M.D., F. A. C. P., is president of the New Jersey Public Health and Sanitary Association.

PHYSICAL DEFECTS IN SCHOOL BOYS

OF 2,000 boys between the age of 15 and 17 years who attend the East Side Continuation School in New York City, only 225 were found to be without serious defects in an examination sponsored by the New York Tuberculosis and Health Association. About half of the boys had diseased tonsils or decayed teeth, or both; over one-fourth were suffering from defective vision; considerable numbers were suffering from malnutrition, nasal obstructions and infections, and heart defects. Seventy-four boys had lung defects or diseases, including 6 with active tubercu-

losis and 31 tuberculosis suspects. While there were few cases of active tuberculosis, the excessive number of pathological conditions which contribute to lower vitality and resistance was of serious importance in relation to this disease.

HEART DISEASE IN CHILDREN

OF the 120,000 school children in Boston, Mass., 2,311 whose yearly physical examination by school physicians suggested a possibility of heart disease were examined by heart specialists. Of these 625, or one-half of 1 per cent of the total number of school children, were found to have organic disease of the heart; 77 were potential heart disease cases; 265 were classified as doubtful and needing reëxamination from time to time. This record is not complete, because the survey only included those children well enough to attend school, and the method of examination may have missed many potential cases.

AMERICAN SOCIETY FOR THE CONTROL OF CANCER

ON March 3, 1928, the American Society for the Control of Cancer will hold its Annual Meeting.

The Executive Committee and the Board of Governors will meet in the morning, at 10:30 o'clock. There will be an interesting exhibit, to which visitors are invited, of a demonstration of modern cancer research at the Crocker Institute of Cancer Research of Columbia University, by its director, Dr. Francis Carter Wood.

DR. KATHERINE B. DAVIS HONORED

A TESTIMONIAL dinner was tendered Dr. Katherine B. Davis on February 2, 1928, at the Hotel Waldorf in New York City, arranged by the National Council of Women.

Dr. Davis was born in Buffalo, N. Y., and graduated from Vassar in 1892. She became a Fellow in Political Economy at the University of Chicago in 1897. She has received degrees from Vassar College, University of Chicago, Western Reserve University, Yale University and the Universities of Berlin and Vienna.

From 1901 to 1914 she was superintendent of the Bedford Reformatory for Women, and at that time Mayor Mitchell of New York City appointed her Commissioner of Correction. After the World War, Dr. Davis went to Europe for the Y. W. C. A., to do social hygiene work and to study the methods of European physicians in their work.

Dr. Davis recently retired from her position as Secretary of the Bureau of Social Hygiene.

EVERY CHILD'S DIETARY

"EVERY Child's Dietary for Mothers and Children" is a pamphlet recently prepared by Pearl S. Shackelford, nutrition advisor of the New York Tuberculosis and Health Association for the National Federation of Day Nurseries. In a foreword, Mrs. Herman N. Biggs, president of the Federation, states that the dietary was prepared with the mothers particularly in mind. "Our aim has been to present it in simple usable form, with recipes any one can use. It includes the proper proportion of calories, minerals, vitamins, etc." The dietary has received the commendations of Prof. Mary Swartz Rose, Henry H. Shaw, M.D., Charles G. Kerly, M.D., Alfred F. Hess, M.D., Charles Hendee Smith, M.D. and L. C. Schroeder, M.D., prominent nutritionists and pediatricians.

INFANTILE PARALYSIS PREVENTION

THE University of California has received, from an anonymous friend, a gift of $5,000 a year during his life, and a fund of $100,000 by his will to be devoted to the prevention and cure of infantile paralysis. The fund may be used, in case of necessity, to combat any serious epidemic which threatens the lives of children in California.

CONTRIBUTION TO DIPHTHERIA PREVENTION

IN *State Charities Aid Association News* for December, 1927, an announcement was made that the New York State Outdoor Advertising Association will again contribute billboard advertising space for diphtheria prevention posters during 1928. They pledged space valued at $25,000 for the year. During 1926 the value of the space contributed was $11,000.

MARYLAND WATER AND SEWERAGE ASSOCIATION MEETS

THE Maryland Water and Sewerage Association will hold a meeting at the Southern Hotel, Baltimore, Md., April 10 and 11, 1928.

Some of the papers presented will be: "Does the Municipality Know What It Costs?" by Thomas S. Durham; "Fire Insurance Savings and Water Works Design," by F. H. Dryden; "Garbage and Refuse Disposal for Small Communities," by William Raynor Straus; "Treatment of Water for Railroad Purposes," by R. C. Bardwell.

There will be papers on the question of stream pollution prevention and also a discussion of swimming pool sanitation. A field inspection trip is planned to the Towson Sewage Treatment Works and the Baltimore City Refuse Incinerator.

AN AMENDMENT WORTHY OF SUPPORT

AN amendment to the pending revenue reduction bill, which is of interest to members of the A. P. H. A. and members of state and county medical and public health societies has been proposed by Senator Arthur R. Robinson of Indiana. The amendment insures to all members of trades or business organizations the right to deduct from their federal income taxes, traveling expenses incurred in attending meetings of such organizations.

The passing of this amendment would enable members of the A. P. H. A. and other professional societies to deduct travel expenses incurred by attendance at their meetings from their income tax. Members can urge their respective senators and representatives to endorse the amendment proposed by Senator Robinson.

THE LESLIE DANA MEDAL

THE fourth award of the Leslie Dana Medal, presented annually through the Missouri Association for the Blind to the person selected from the nominations received by the National Society for the Prevention of Blindness, will take place during the 1928 meeting of the American Academy of Ophthalmology and Otolarnygology, in St. Louis, Mo.

Nominations will be received by the National Society for the Prevention of Blindness, 370 Seventh Avenue, New York, N. Y., until May 15, 1928.

Items to be considered in making the nominations are: (1) Long meritorious service for the conservation of vision in the prevention and cure of diseases dangerous to eyesight; (2) Research and instructions in ophthalmology and allied subjects; (3) Social service for the control of eye disease; (4) Special discoveries in the domain of general science or medicine of exceptional importance in conservation of vision.

REORGANIZATION OF NEW YORK CITY HEALTH DEPARTMENT

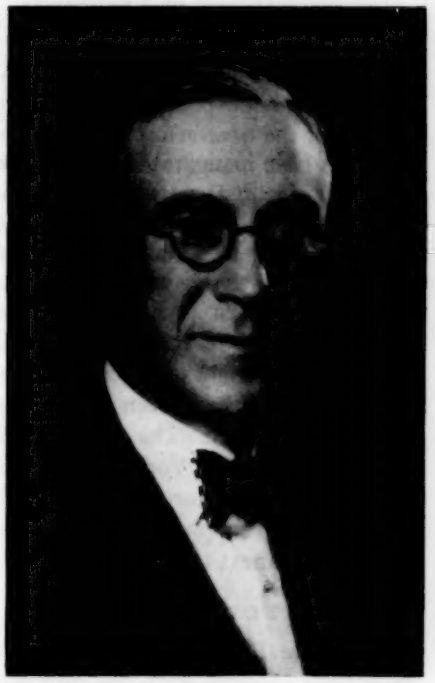
IN the reorganization of the New York City Health Department authorization has been given for the creation of a Bureau of Nursing, for the recreation of a Bureau of Public Health Education which has not functioned for several years, and for the consolidation of the Bureau of Child Hygiene, the Bureau of Preventable Diseases and the Division of Adult and Industrial Hygiene.

Louis I. Harris, M.D., health commissioner has announced the appointment

of the following directors of new bureaus and departments: Charles B. Bolduan, director, Bureau of Public Health Education; Amelia H. Grant, R.N., director, Bureau of Nursing; and Herman T. Peck, general medical director.

Speaking of the authorization by Mayor James Walker of this reorganization Dr. Harris explained: "It is a most substantial part of the scheme which was worked out after long study and after receiving the approval of the foremost health experts in the country. This reorganization is by way of housecleaning and to remedy the laxity and demoralization that was found to exist in the department at the beginning of 1926."

Under the direction of the Bureau of Nursing will be placed the 535 nurses employed in visiting homes, schools, and those engaged in clinical services or other field activities of the health department. The consolidation of the medical bureaus will be the first step in bringing about a mobilization of the medical field force of the health department to coöperate with the medical profession at large, in a strictly preventive capacity.



A. H. Flickwir, M.D., Fellow A. P. H. A., City Health Officer, Houston, Tex., is the representative to the A. P. H. A. from the Texas Association of Sanitarians.

NEW YORK TUBERCULOSIS AND HEALTH ASSOCIATION

LINSLY R. Williams, M.D., has been elected president of the New York Tuberculosis and Health Association to succeed James Alexander Miller, M.D. resigned, who has been president since the organization of the association. Dr. Williams is also managing director of the New York Academy of Medicine.

Walter M. Brunet, M.D., a member of the A. P. H. A., for several years director of the Division of Medical Measures of the American Social Hygiene Association has resigned to become executive secretary to the Committee on Social Hygiene of the New York Tuberculosis and Health Association. Dr. Brunet will serve as a consultant member of the A. S. H. A.

DR. MCCARTHY DIRECTOR HEALTH EDUCATION IN NEW YORK SCHOOLS

JOHN D. McCarthy, Ph.D., M.D., formerly head of the Department of Hygiene, De Witt Clinton High School, has been appointed director of health education of New York City Schools.

Dr. McCarthy is prominent in the health education field. He is an instructor in psychiatry at Columbia University and a member of the staff at Vanderbilt Clinic. For the past 4 years he has been an instructor in health education at New York University and also at Fordham University. Following his graduation from Dartmouth College he received his M.A. at Columbia University, his Ph.D. at New York University. Later he was graduated from Harvard Medical School.

FREE DISTRIBUTION OF PNEUMONIA SERUM

FREE distribution of a limited quantity of the new pneumonia antibody solution for the treatment of lobar pneumonia has been inaugurated by the New York City Health Department. A grant of city funds to defray the expenses for the purchase of the serum has been obtained. Later a charge will be made for the product, but an amount will always be available free for charity cases. It is now available only to physicians who have cases which have been progressing for 3 days or more. The solution will be made in the New York City Health Department Laboratories, but a sufficient amount to supply all needs will not be ready until next fall.

NEW MEXICO

THE State Board of Public Welfare of New Mexico with the approval of Governor Dillon, will borrow $2,500 with which to inaugurate the anti-malaria campaign in Dona Ana County. It is necessary to commence operations immediately against the malaria bearing mosquitoes which have already appeared and the emergency fund was needed before county money could be made available. Dr. C. W. Gerber, County Health Officer, has worked out the details of the campaign.

STATES COÖPERATE ON STREAM CONSERVATION

MARYLAND, Pennsylvania, Ohio, West Virginia, Kentucky, New York, Indiana, Illinois, and Tennessee have entered into an agreement for interstate stream conservation which provides for joint sanitary control over the waterways in these states. The agreement has been made through the departments of health of the 9 states. The agreement insures the protection and conservation of adequate and safe water supplies for drinking and commercial use.

An advisory board composed of the chief engineers of the 9 states will advise on the policies and methods of sanitary engineering problems involved.

PENNSYLVANIA PUBLIC HEALTH ASSOCIATION

THE Pennsylvania Public Health Association held its annual meeting at Philadelphia, February 13-14.

The officers elected for 1928, are: President, J. C. Reifsnyder, M.D., Scranton; First Vice-President, J. T. Butz, M.D., Allentown; Second Vice-President, John M. J. Raunick, M.D., Harrisburg; Secretary-Treasurer, Wm. C. Miller, M.D., Harrisburg; Assistant Secretary-Treasurer, Edgar S. Everhart, M.D., Harrisburg.

Those elected to the executive committees are: Theodore B. Appel, M.D., Harrisburg; Thomas W. Henderson, Washington; W. E. Matthews, Johnstown; Thomas Herbert, Altoona; C. B. Auel, Pittsburgh, and H. C. Frontz, M.D., Huntingdon.

TEXAS

THE First Short School for Dairymen and Milk Dealers in San Angelo, Tex., and adjacent territory was held at San Angelo, February 23 and 24. The school was arranged under auspices of the Dairy Division, the Board of City Development, the City Health Department, the Texas Association of Sanitarians, and the State Department of Health. The economy of high grade dairying, dairy barn construction and sanitation, the standard milk ordinance inspection code, demanding health examination certificates from dairymen and food handlers, and milk as a food were among the topics discussed by experts.

PERSONALS

Drs. William F. Passer, Twin Falls, Ida., and George F. Ashley, Montpelier, Ida., have been appointed members of the state medical board, and Drs. Frank W. Almond, Boise, Delos E. Cornwall, St. Maries, and Charles F. Hanmer, Salmon, reappointed members of the board for 1928.

Dr. George H. Lowthian, formerly of Milbank, S. D., has joined the staff of the veterans' hospital at Boise, Ida., succeeding Dr. William S. Titus, who resigned.

Dr. T. Restin Heath, formerly medical superintendent of the Flint-Goodridge Hospital, New Orleans, La., has been appointed superintendent of the Bethany Hospital in Kansas City, Kan.

Dr. James H. Huddleson, Jr., has been appointed consulting neuropsychiatrist at the U. S. Veterans' Hospital 81, New York, N. Y.

Dr. Bruno S. Harwood has resigned as head of the sanitary department of the board of health on Staten Island, effective February 10, and will assume the superintendency of a tuberculosis sanitorium in Sullivan County.

Dr. Andrew J. Crowell, Charlotte, N. C. was elected president of the North Carolina State Board of Health, January 23, to succeed the late Dr. Joseph Howell Way, who held that position for about 15 years.

Dr. Elijah B. Pickel, Medford, Ore., has been elected president of the Oregon State Board of Health to succeed Dr. Willis B. Morse of Salem. Dr. Harold C. Bean was elected vice-president and Dr. Frederick D. Stricker, secretary.

Dr. Philip W. Boyd, Winchester, Va., was elected president of the Virginia State Board of Medical Examiners to succeed the late Dr. Robert Glasgow.

Dr. Arthur H. Cohn has been appointed chief police department surgeon of Milwaukee, Wis.

Dr. Claus T. Droege, New York, Wis., has been appointed prison physician of the state penitentiary at Waupun, succeeding Dr. Wallace P. Smith, who held the position since the recent death of Dr. John F. Brown.

C. G. Crow has been appointed city health officer of Oroville, Calif., to succeed John O. McAtee.

Dr. T. Dwight Sloan of Ohio has been appointed Superintendent of the Post Graduate Hospital, succeeding Col. Louis G. Trimble, who resigned.

Dr. W. M. Taylor, health officer of Mooers, Clinton County, N. Y., for 20 years, died on January 13.

Dr. Frederick A. Hemsath, a former member of the staff of the New York State Laboratory, has been appointed director of the Cattaraugus County Laboratory.

Dr. John H. Korus has been appointed superintendent of Rocky Crest Sanatorium at Olean, Cattaraugus County, N. Y.

Dr. William L. Somerset, chief diagnostician of the New York City Health Department died January 11 from thrombosis while undergoing an operation for appendicitis. Dr. Somerset was associated with the city health department for over thirty-five years and was widely known for his diagnostic ability in communicable diseases, especially smallpox.

Dr. S. H. Bennett of Little Valley, Cattaraugus County, N. Y., died January 1. Dr. Bennett was health officer of the town of Greenwood from 1909 to 1918, of the town of West Union from 1912 to 1918 and of the town and vil-

lage of Little Valley from 1918 to the date of his death.

Dr. Albert Mueller has been appointed city physician of Rock Island, Ill., to succeed the late Dr. Joseph Hollowbush.

Hazel Goff and Mary Elizabeth Tennant have been appointed field directors of the Paris Staff of the Division of Medical Education of the Rockefeller Foundation.

Miss Alma C. Haupt, assistant director of the Commonwealth's Fund Division for Austria, has been transferred to the staff of the New York office and will be in the division of Rural Hospitals.

Dr. J. A. King of Ojai, Calif. has been appointed health officer of Ventura County, to succeed Dr. A. A. Maulhardt.

Dr. I. C. Riggin, former health commissioner of Lorain County, O., general health district, has been appointed associate secretary on the staff of the Cincinnati Public Health Federation. He will direct the programs of the heart council and the cancer council.

The Department of Soldiers' Civil Re-Establishment of Canada has been transferred to the jurisdiction of the Department of Public Health and Dr. J. A. Amyot, C.M.G., Deputy Minister of Health will be Deputy of both branches.

Dr. Charles E. Shultz, health director of Bloomington, Ill., has resigned to become superintendent of Fairview Sanitorium of Illinois.

Dr. Michael A. Cunningham, formerly assistant superintendent of the tuberculosis hospital at Oakdale, Ia., has become medical director of the Holy Cross Sanatorium at Deming, N. M.

Dr. James W. Bazell has been appointed health officer of Winslow, Ariz., to succeed Dr. John R. Walls.

Dr. James R. Dykes, of Marshallville, Ga. has been appointed health officer of Grady County, Ga. He will succeed Dr. Mannie A. Fort who has had charge of the health work in both Grady and Decatur Counties. The combined county health program could not be continued according to report, since state and federal aid had been exhausted.

W. G. Stronquist has resigned as director of the division of sanitary engineering of the health department, Memphis, Tenn. to accept a similar position in Birmingham, Ala.

Dr. Augustus A. Oliver, Paris, Tenn., has been reëlected county health officer. He is also city health officer of Paris and has been in public health work for about 20 years.

Dr. George D. Butter of Pulaski, Tenn. has been elected health officer of Giles County, Tenn.

Olive Chapman, formerly with the New York County Chapter of the Red Cross is now executive secretary of the chapter at Greenville, Miss.

Dr. Nelson A. Bryan, formerly of Atlanta, Ga., sailed on January 17 for the Southern Baptist Mission Hospital at Hwanghsien, China. He will be the only American physician connected with the hospital.

Dr. Ray S. Dixon, director of venereal clinics, department of health, Detroit, Mich. delivered the De Lamar lecture on hygiene at the Johns Hopkins School of Hygiene and Public Health, January 24, on "Factors in the Control of Venereal Disease."

Dr. John Sundwall, professor and director, division of hygiene, public health and physical education, University of Michigan Medical School, Ann Arbor, Mich., was elected president of the Michigan Public Health Association at its 7th Annual Meeting at Lansing, Mich., January 13.

Hibbard R. Norman, Health Officer of New London, Conn., has appointed